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THE FRIEND WHOSE POWER FOR PUBLIC SERVICE HAS BEEN NO LESS
DISTINCT THAN HER PRACTICAL KNOWLEDGE OF THE BEST
THINGS IN THE HOME, AND WHOSE LIFE AT
ALL POINTS MEANS BETTER THINGS
FOR ALL WOMEN

HOUSEHOLD ECONOMICS

A COURSE OF LECTURES IN THE SCHOOL OF ECONOMICS OF THE UNIVERSITY OF WISCONSIN

BY

HELEN CAMPBELL

Author of "Prisoners of Poverty," "Women Wage-Earners," "American Girls' Home-Book," etc.

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INTRODUCTION.

IF the title of the present volume read "Household Economies," it might be received with more favor, economies being the housewife's usual conception of economics.

Yet economics it is, its prefix a wonder and a question; to the Greek foolishness, to the Jew a stumbling block, to political economists a misnomer. It is hoped that the present word will show clearly not only the reason of its adoption, but the absolute necessity for holding strenuously to it, as the keynote to the new movement.

For women and their thought about it what shall we say? From that day in which all industries and arts were in her hand, one by one they have slipped away. Of the ten noted by Professor O. E. Mason in his notable little book, *Woman's Share in Primitive Culture*, in the conclusions of which he had already been seconded by Taylor, Lubbock, and other anthropologists, all but two have passed into the hands of men. These two, cooking and cleaning, save when men occasionally engage in them, remain in nearly as incoherent primitiveness as in that remote day in which she—mother and conserver of the race—first demonstrated her power to handle them.

How has the change come and why? The answer

is plain. Habit, tradition, conservatism, all forces that make for the conservation of the race, have united in one enormous, all-comprehending inertia. The sense of duty, the compulsion of old forms, the iron limits of the past interpretation of woman's sphere—all this and more has made the mind of woman on this side inaccessible. Man saw a better way, used and perfected it. Woman saw only the day's work. Atrophy had set in and remains, and it is this atrophy we encounter in seeking to put the science of household economics on a level with the A B C of the sciences. That it is something reducible to forms, and to be studied as science—not as a series of duties, vague, indefinable, all-pervading and encompassing, summing up at last like the Scotchman's creed: "You 'll be damned if you do, you 'll be damned if you don't,"—only a few here and there have admitted.

So it is that the work has gone on. The "sanctity of the home" has centred chiefly about the kitchen stove; the boys have fled from it with a speed that does credit to their intelligence, nor can they by any present means be lured back again. This and a thousand other things have resulted from the system to which women cling, clamoring objections at any attempt to set their feet on more solid ground. Not till the "domestic service" question became so desperate a complication that wise women opened their eyes and foolish ones protested louder than ever did the real nature of the problem begin to dawn.

On every side of woman's life save this has been an advance marvellous in its nature, full of high promise for the future of mankind. And on this at last there are tokens of life. A gasp, a little shudder and quiver, in that body we know amiably as "the eternal

womanly," but is there anything so tangible as a "movement" for women, much less for universities, and if so, how may its existence be demonstrated? This will be answered farther on, the opening chapter defining its status or the want of it and the popular attitude toward it; all this constituting the first three divisions of the subject and bringing us to the fourth, the university movement, its statistics, trend, and possibilities.

The college-bred woman, a product not much more than a generation old, numbers now for this country about three thousand. As pioneer in the new field, she has found both rewards and penalties, but as a whole has gone her way with enlarged view of life, and a capacity for practical thought and action which it has sometimes been affirmed the college-bred man does not possess. She has shared the fate of most students in having her mental processes a little encumbered and hampered by bookishness. Added to this she has borne the additional burden not only of tradition and custom, but of the weighty discourses of eminent men, who while volubly announcing their views as to her brain, her moral and physical status, how she would marry and whether she would marry at all, her voting or not voting, etc., etc., have not expounded their thought as to "that centre and source of political economy, the kitchen," with the home at large and the appurtenances thereof, the servant question and her relation to it, and all the depending facts and theories.

Naturally a large percentage of these women in the beginning chose literary and scholastic forms of activity, but the remainder have gradually discovered that a work lay before them including every art and

science still marked on the map of the past and of to-day "unknown." The American mechanic, they had learned, owed his position as leader of the world to the fact of "his readiness to change old ways for new and better devices." Had not the time then come for the American housewife to follow in his steps?

With the feeling out in these lines came the knowledge that the bogie known as the "servant question" was no bogie, but a natural process of evolution, the matter having been admirably stated by Mrs. Helen E. Starrett:

> "In a large part the insubordination of servants arises from the growing sense of unwillingness to be directed and governed by the individual. It is the spirit of the age which rebels against the dictates of the individual, but submits freely to the despotism of an organization."

College women meditated on these things; college women demonstrated in their own homes, many of them, full capacity to meet and master the daily problems of living, and speculated as to why the initial scheme of Vassar College which had planned for a course of domestic economy had fallen through; why Wellesley found it hard to live up to her plan for work from each student, and Holyoke no less, Smith and Bryn Mawr calmly turning their backs on the whole question.

As it then stood these last were in the right. It was a trade school that was wanted; a place "where," as Mrs. Ellen H. Richards puts it, "the apprentice has to go through all the steps day by day mechanically until he cannot help doing them right." Every effort to teach domestic economy had been on this plan and by divine appointment it has failed. The foundation

laws of matter and form, the principles of trades, with just enough practice to illustrate them, can be taught in a few months.

While these things moved slowly toward the foreground, facts had at last become perceptible to the university mind, not as a whole, but in isolated cases. Agricultural colleges, notably Illinois and Iowa, had tried the trade-school theory and failed, each attempt, however, being of inestimable advantage in the way of reconstruction of thought. The Collegiate Alumnæ in the meantime formed a Sanitary Science Club and issued a little manual on House Sanitation, the first suggestion of the large work in the same lines now going on under Dean Marion Talbot in Chicago University.

At this point we may begin to number the universities in which such work has actually been done. That of Chicago, with its large endowment and ample facilities for laboratory work, leads, so far as this phase is concerned. But the University of Wisconsin in its School of Economics may fairly claim to have shared the same thought at the same time and struggled to give it more material form. Mrs. Adams, the cultivated and large-minded wife of the President, urged on the movement, and Dr. Richard T. Ely, wise and far-seeing as is his wont, includes in his plan a course of twelve lectures on household economics, given under his direction in the spring of 1895, and urges the adding of suitable buildings with funds enough to fully equip a working department.

The course given at the University of Wisconsin was made as closely condensed as possible, twelve lectures being all that the spring term could carry. No building for technical work is yet planned, and the

lecturer is compelled to give the results of practice only, and, as far as possible, an outline of a subject which means, at its fullest, three years of university work.

The University of Illinois had a tentative course fifteen years ago on the trade-school basis and dropped it for lack of both funds and interest. Now with a fresh and more vital sense of need, it has secured a repetition of eight of the lectures given at the University of Wisconsin, and hopes presently to organize a fully equipped department. Lake Forest, Illinois, has a lecturer and a limited but excellant plan of work, the Northwestern University, at Evanston, is questioning as to action in the same direction, and Mrs. Kedzie, of the Kansas State Agricultural College, has had distinct success in work there. Inquiries have also come in from many co-educational colleges and from many of the larger seminaries which prepare for them. From the remote West, as Washington and California, to the middle West, the question appears to be under active discussion, and a recent letter from Winnipeg begs for all possible information on the general subject. Many of the agricultural colleges are organizing departments, with admirably trained heads, and all are discussing the special needs of women in this direction.

In Vassar College, Professor Lucy Salmon has devoted much time and energy to a study of domestic service, having prepared and sent out thousands of blanks with inquiries to be filled in, the result being embodied under the title "A Statistical Inquiry Concerning Domestic Service," in the papers of the American Statistical Society, June, 1892. Others in the same line will be found in *The Cosmopolitan*, July, 1893, and the *New England Magazine*, April, 1894. Vassar itself

does not yet see the necessity for sharing in the new movement, nor singularly enough do any of the colleges exclusively for women; though many of them have alumnæ who are active workers in this field, and plan the preparation of various hand-books in addition to the one on Household Sanitation already in use. Mrs. Ellen H. Richards, of the Boston Institute of Technology, has been an active worker in organization and stands as a high authority in the chemistry of foods, their adulterations, etc., Mrs. Mary Hinman Abel being equally well known, and both being fitted for every phase of university work in Household Economics as a whole.

I have before me a series of letters from college presidents, all inquiring as to possibilities and expressing a keen interest in the matter. Cornell is one of these; but the feeling is much stronger in the West than in the East, Nebraska, Iowa State University and Iowa College at Grinnell, with many others, expressing not only interest, but full intention to get to work themselves as soon as money can be appropriated to this end.

In California, though hampered by the same difficulty of lack of money, Stanford University has been doing admirable work under the guidance of Mrs. Mary Roberts Smith, a graduate of Cornell, for some years professor of history at Wellesley College, and later at Leland Stanford, who is bending all the energies of her fine mind and personality to these new lines of work. I give the outline followed by her, as illustrative of what can be done without laboratory or other working appliances.

LELAND STANFORD JUNIOR UNIVERSITY.
ECONOMICS AND SOCIAL SCIENCE.

A. Economic function of the housewife.
B. Domestic architecture.
 1. Location, foundation, exterior plans (elevation).
 2. Interiors: drawing simple house plans.
 3. Visiting houses criticising plans.
 4. Relations of rooms.
C. Plumbing and drainage.
 1. Bacteria.
 2. Principles of plumbing: pipes, closets, lavatories, baths, sinks.
 3. Disinfection and pests.
D. Ventilation.
E. Heating: principles of combustion.
 1. Stoves, fireplaces, steam, hot water.
 2. Varieties and value of fuels.
F. Lighting: lamps, gas, electricity.
G. Artistic and economic furnishing.
H. Food.
 1. Chemistry of food.
 2. Composition of food materials.
 3. Chemistry of cookery.
 4. Diet of students and children.
 5. Adulteration.
 6. Vegetarianism.
 7. Beverages.
 8. Cooking apparatus: range, gas, gasoline, aladdin oven, electricity.
 9. Marketing and supplies.
I. Domestic labor.
 1. Statistical, economic and sociological basis of domestic service.
 2. Co-operative living.
 3. Time work and piece work.
 4. Doing one's own work.
J. Household Finance.
 1. Accounts, bills, receipts.

During the course the students made frequent visits to the

house of some of the ladies of the faculty, criticising and receiving instruction, especially in household apparatus and plans. Although we have no household laboratory, several demonstrations were performed before the class, illustrating points in chemistry, microscopy and bacteriology as applied to the household. The course was further elaborated by some excellent lectures, by

Prof. A. B. Clark on Household Architecture, Convenience and Economy.

Prof. B. C. Brown on the Principles of Artistic Decoration.

Dr. T. B. Wood on Bacteriology and Domestic Hygiene.

This is the summary of the university movement as it stands to-day, widespread as the thought seems to be, still lacking the strong grip that insures immediate adoption of an organized system of work. The human animal, its ways, needs, rights, is still only indirectly studied. Men and women leave college in possession of full knowledge as to the interior structure of the clam, what food it demands, what habitat best develops him, but their own is a sealed book. Dyspepsia rules with professor and student alike; air of absolute foulness is peacefully consumed by the most intelligent, and how to clothe the human body is still apparently an insolvable problem. Blank ignorance on all these points is accepted without the faintest thought of its disgrace or its danger. The human animal feminine trusts that instinct will teach her how to rule a house and guide her young. The human animal masculine believes that Providence arranges these things, and that scientific cookery, sanitation, and all that are the fad of a small school of cranks. In the meantime social problems of every order, born of this gross ignorance and indifference, press upon us and clamor for a solution the untrained mind can never give, while legislators for state univer-

sities and boards for private ones are not yet awake to these facts or the lesson time holds for all.

We come now to another form of the movement, tha embodied in the great Institutes, Pratt, Drexel, th College for the Training of Teachers, and Armour, portion of the general University Extension movement all of them doing admirable work. But the director of the "Domestic Science" department in each seen all to unite in the conclusion that a larger handling i essential and that the relation of home to state must b taught as it never has been taught before. Side by sid with this conclusion and the search for better methods goes the work of the National Household Economic Association, formed in 1893, having branches in many of our cities, state presidents in all the states, and a definite plan for work as follows :

The object of this association shall be :—1. To awaken the public mind to the importance of establishing bureaus of information where there can be an exchange of wants and needs between employer and employed, in every department of home and socia life. 2. To promote among members of the association a more scientific knowledge of the economic value of various foods and fuels ; a more intelligent understanding of correct plumbing and drainage in our homes, as well as need for pure water and good light in a sanitarily built house. 3. To secure skilled labor in every department in our homes, and to organize schools of household science and service.

The Federation of Woman's Clubs has accepted th is form as a basis for a section in every woman's club f or the study of household economics, and programmes f or this work have been prepared by Dr. Mary Green, Mr s. Kate Watson, and Mrs. Helen Campbell. Chicago i s discussing earnestly the possibilities of a great trainin g school for mistresses and maids, the organization o f

household service on a new basis, the forming of a genuine employment bureau, with graded rates of payment, and great central offices—another Bourse de Travail, with even larger scope than that most admirable bureau. Philadelphia, in its Civic League, has formed a branch for this study and the investigations connected with it, and has been preparing what is likely to prove a valuable report of their work in the line of domestic service. Syracuse is also doing admirable work. New York, in a branch of its Civic League under the direction of Mrs. Robert Abbe and other women as well known, is planning for investigation in these lines, and Boston is making practical tests of some of the new theories. In short the new-comer knocks at every door, and in this swift-moving generation it must, from the very nature of things, find speedy entrance—and a recognized footing—wherever thinking men and women work together for that future which is theirs in common.

I wish to give here my very hearty thanks to Mrs. Charlotte P. Stetson, whose deep interest has at various points taken the form of co-operation, to Dr. Richard T. Ely, for his constant faith in the work to be done, and to Mr. Paul Tyner, for efficient help both as critic and in technical lines.

Boston, October, 1896.

HOUSEHOLD ECONOMICS

CHAPTER I.

THE STATICS AND DYNAMICS OF HOUSEHOLD ECONONY.

The Relation of Household Economics to Life—The Evolution of the Family—Structural and Functional Organization of the Household; the Essentials of Each and their Interdependence. Arts, Crafts, and Sciences Involved—The Low Popular Opinion of Household Economics, its Cause and Effect—Personality and Generalization—Savage and Child to Scientist—Evolution of Household Economics—Division of Labor on Sex Lines and the Biological Reason for this Division—Ascent of Man Economically.

IT is a study hitherto unknown, upon which we are about to enter; a study the ground of which has existed from the beginning of human history and behind even that beginning, yet the science of which has not yet, in any real sense, been given to the world.

As for a long time we lived and died, fought, loved, worked, suffered, and enjoyed without any knowledge of the anatomy and physiology of the human body; and as for a long time nations rose and fell, flourishing and ro uggling as conditions varied, without any knowledge h social economics; so have households increased and

multiplied on the face of the earth, carrying the life of man within them, and undergoing the most vivid extremes of success and failure, pain and difficulty, ease and pleasure, without any knowledge of Household Economics, or indeed that such a thing existed or could exist. A definition is then the first thing needed. Let us see if we can compass one.

The statics and dynamics of Household Economy are to the household organism precisely what anatomy and physiology are to the physical organism. In the individual, in the household, in the state, is organic life; and until that organic life is understood,—its essential structure and functions,—we cannot know how to maintain its health or promote its development.

Household Economics is the connecting link between the physical economics of the individual and the social economics of the state. Its relation to human life is of the most intimate and vital nature.

To the individual, the condition of Household Economics means the health and happiness of his life. So vital a process as the nutrition of humanity lies in its most important stages—those of selection, preparation, and consumption,—almost entirely within the range of this science.

The life of the family, with all that it means to the life of the race, is absolutely dependent on the household life. Whether we live or die, and how we live or die, are largely determined by our household condition. The household and its healthy action is to the family what our own body and its healthy action is to our own soul. The family without the household is but a disembodied spirit. And the family in a disorde household is but a sick and sorry spirit at best.

One might almost say of the relation of Household Economics to life that it is life; for life, beyond that of the solitary savage, could not exist without it.

On the other hand, the relation of this great science to social life is equally close, equally important. The household, in its evolution of related industries, is the parent of the state. Aristotle is right in his far-seeing statement that the state comes first; but that precedence is the precedence of the artist, who tells you that you must rightly draw the whole before you can rightly draw the part;—the greater includes the less.

But to the evolutionist, the family comes first in order of development; as it was through the development of the family instincts, primarily the maternal, that any combination of men became possible. The evolution of a home was as strenuous and tremendous a business as the evolution of a mother and to understand either one or the other some very serious study in biology is necessary. Mothers had to come first, and Drummond gives the process in that wonderful eighth chapter in his *Ascent of Man*, "The Evolution of a Mother."

With the forming of that family which the very naturalist has had to call Mammalia, the family of mothers, came the final unfolding. The beginning of protective maternity was hardly more than a dumb instinct feeling out toward the thing to come. The hurrying woman-savage, still more animal than human, stirred by the cry of the rain-pelted baby slung at her back, sought some covert—a place wherein to make a nest for her young. Bare earth, the shelter of tree or rock might suffice her own need—but the baby must have something better. So began the cave-dwelling

era, the lake dwellers, the stone age,—all that marvellous story of time and the generations of time. At last, out of cave and hut and every mere make-shift of habitation grew, bit by bit, the wonder of comfort, of beauty and fitness embodied to-day in the noblest form of human dwelling, the seal and token of the evolution of the family.

This is the central fact of civilization.

"If the crowning work of organic evolution is the Mammalia, the consummation of the Mammalia is the Family. Physically, psychically, ethically, the Family is the masterpiece of evolution. The creation of Evolution, it was destined to become the most active instrument and ally which Evolution has ever had. For what is its evolutionary significance? It is the generator and the repository, of the forces which alone can carry out the social and moral progress of the world. There they rally when they become enfeebled; there their excesses are counterbalanced, and thence they radiate out, refined and reinforced, to do their holy work." [1]

It is very clear, then, that the vaguest and loosest [illegible] social organisms is not found until some degree of fa[illegible] ily organism exists. Organism stands simply for [illegible] interdependent relation of structure and function; [illegible] not until the interrelation of service and defence in [illegible] primitive household established connection betw[illegible] individuals was there the possibility of such inter[illegible] tion in a state.

The household is a living organism;—that is [illegible] keynote to its study. A thing cannot be unders[illegible] until we know whether it be alive or dead, whe[illegible] its parts are connected in any essential order, [illegible] whether its processes have any essential conne[illegible] with its parts. All that can be predicted as to

[1] Drummond's *The Ascent of Man*, p. 316.

essentials of any living organism is true of the household. It is a form of human life, outside the physical life, inside the social life, having its own economy.

Its structural demands vary, but certain essentials always remain. The structure of the household must provide for the accommodation of the related beings who are its life, and accommodation for the activities which maintain their lives in that relation.

Its functional demands vary, but certain essentials always remain. The functions of the household must fulfil those activities which are essential to its maintenance.

This structure and these functions are as truly organic as any imaginable. The one maintains the other,—function forming organ,—and neither existing alone.

The industries which form our household functions vary widely in kind and in degree. This has been true from the time when all that was done beyond fighting was done at home, to the time when nothing shall remain to the household labors but the immediate personal care of the family.

There are special reasons why, at the outset of our work together, a kind of attention is demanded which it may be a difficult matter to give. On the one hand, we have heard all our lives of the importance of the knowledge we are beginning to call "Domestic Science," or "Household Science," according as we in our own minds limit or extend the term. On the other hand, we have seen the application of this knowledge practised by the lowest class of people in the lowest form of labor. It is my business to introduce to you a new science attended only by the difficulties of unknown; but an old one, long misunderstood,

and buried under centuries of densest prejudice. Therefore, I appeal from Cæsar unto Cæsar; from the minds of women accustomed to regard Household Science as a thing born of and guided by instinct, to the minds of scholars trained in the new scientific thought that knows nor small nor great in TRUTH.

The study that lies before us is not "how to keep house." This course does not propose to graduate licensed housekeepers nor trained servants. We are to study those branches of social economy which are involved in housekeeping, the sciences, arts, and crafts therein practised, and their effect on human life. Thus far there has been little attempt to consider the matter as a whole, or to bring to bear upon it the methods which govern our investigation of the sciences in general. Where such attempt has been made, we have dealt with scattered details and ignored general principles.

It is not a series of developments from human life that we are to treat, however, but human life itself, at its roots. From these roots have grown innumerable activities, some practically perfected, others still unfinished.

It is a view, then, of a coherent whole that we want; not of one or another of the integral parts and activities of the household, but of that intelligent relation of all its parts and activities to a common purpose, which we call Household Economics. Under this head are grouped as requisite for understanding of our present household life, the following subjects:

A knowledge of situation suitable for human homes, soil, climate, elevation,—and their relation to health and character.

Architecture—considered not only for outside beauty

—a thing to be looked at—but also for structural use and value; with the relation of rooms and their uses to the general plan.

And then for this body the thing the world craves and is finding in large measure from day to day—light, light, and always more light! Its office in the household life, as in the civic,—the full mission and meaning of sunlight for every nook and corner, and, following hard upon it, those other necessities for the house—heating, airing, watering, and draining.

Jean Macé in his charming *History of a Mouthful of Bread* compares the circulation of the blood to a water supply; and he is right. As much water as comes into the house must go safely out of it, unless we want to swim.

At once, then, comes demand for at least a partial knowledge of the sciences that must work for us in each of these lines: chemistry, physiology, the laws of hygiene and sanitation; every force that can be brought to bear on the problem of living, and its handling in such fashion that all men may have and know the best.

One may well pause here for a moment for one thought as to the deeper meaning of this house which we are to build together, and no one has said it all more perfectly than William Gannett in his *The House Beautiful*, which ought to be in every household in the land. Men and birds seem to him much of the same order in their foragings on Nature and rearrangement of the plunder according to their respective tastes. But for the creation of man's hands, is another word out of a Bible verse.

"'I heard a great voice out of Heaven; Behold the tabernacle of God is with men, and he will dwell with them, and they shall

be his people.' Call the great Power God or by what name we will, that Power dwells with us in so literal a fashion, that every stone and rafter, every table, spoon, and paper scrap bears stamp and signature to eyes that read aright: 'The house in which we live is a building of God, a house not made with hands.'"

As the body is forever the temple of the Holy Ghost, to be made fair and clean and perfect for that indwelling spirit, so the house stands as the shell in which that body must do its work, hampered and hindered if imperfectness has been admitted, helped and strengthened if wisdom has builded the home. Bear it in mind all the way through, that this structure is a vital thing, and then the processes that follow and fall into line will take on new meaning and carry larger significance.

With the skeleton well arranged comes the beautiful body, and there follows as naturally as for the human body, DECORATION, a much abused word, but full of fine possibilities. *Color!* Do you know what that can mean? Not screaming combinations that, as the French say, "fly at the eye," but soft shadings and tintings with points of clear color, as a flower grows and as a woman should dress. *Design!* Wisdom must enter into that, and sense of form and the beauty and power of true lines. Line and color together, what they mean—what they are to us!

Our soul-life is modified hour by hour by these stone or wooden bodies in which we move about; especially are the children modified, soul and body, and for this we see full reasons in the words already quoted from Gannett.

Furnishing follows, holding all I have suggested as to form and color, limited and ennobled by use, and giving us a study full of profound significance.

Then come in due order the following industries, all

growing out of household life and needs, two of them always inseparable, cooking and cleaning,—followed by repairing, renewing, serving, nursing, teaching.

To perform or to properly superintend these industries is required a knowledge of the chemistry of foods and of cleansing processes, and to some degree of agriculture. Physiology is absolutely necessary, and hygiene and general sanitation go hand in hand with both.

All these knowledges are involved in household economics. It is the administration of human life,—neither more nor less. Not all of it, but all of it up to a certain point. Not knowing these things is largely what keeps our rate of living down so low—and results in turning out as our home product, weak, unhealthy, and inharmonious lives, to the deterioration of the world. To rightly understand them and apply them, will make a new people. But till the minds of college women, trained to logical processes of thought, looking with clear, dispassionate eyes at the medley that makes the past, and with trained and skilful hands seeking to bring order out of the chaos,—until these have settled the meaning and bearing of the science of Household Economics, the organization that will change the face of the world remains impossible. Growth in power of organization is the mark of all progressive civilization; and it is the lack of this quality which has left Household Economics where it is.

Popular opinion on the subject of our study is very low. The whole field of study has suffered mainly in that the thinking half of humanity have dismissed it scornfully as "women's work"—thus showing the limits of their thinking. Being in the hands of women, it was supposed, on the one hand, to be of a simple and

easy nature, as the poet tells us in his favorite phrase, "light household tasks,"—a singularly inapplicable term for the labor of washing, scrubbing, sweeping, and the endless stepping and standing involved in domestic industry. On the other hand, it was supposed,—the whole scheme was supposititious,—that, being the work of women, and women being creatures gifted with a superhuman faculty of intuition, that they knew how to do their work by instinct. Any deficiency shown in intuition was supposed to be made up by tireless industry, and if things went wrong in the household economy it must be due to one or two things —either laziness or lack of "womanliness," *i.e.*, intuition. The general low status of domestic industries, if considered at all, was considered as owing to the nature of women, and dismissed with pity or contempt.

In the meantime, this ignored system of household economy continued to follow its own laws and to work its own results, and the progress of the world and the life of mankind hung upon its footsteps. As the woman is the home, as the home is the nation,—the popular opinion of household economy is as much mistaken as popular opinion is regarding some other questions.

The cause of this low opinion is partly, as I have said, from its being women's work, and so not studied by men, partly to a similar feeling, dating from that period in early history and prehistoric times when all such labor was performed by slaves, partly to the low price paid for household labor,—a fact due mainly to the two causes just mentioned,—and partly to an instinctive feeling in the heart of the seeker for truth to go up and out—not in.

So we have quartered the earth and subdued it; we have burrowed beneath its surface; we have measured

the ocean depths and charted its oozy floor; we have diligently striven to reach the North Pole; we have exultantly explored the heavens with telescopes and hypotheses to aid; we have even turned our attention to humanity,—an interesting field manifesting marked peculiarities and variations,—but we have not yet learned in all our wanderings this simple precept: "Look at home!"

The effect of this ignorance of the very fountain of progress, has been to retard the growth of civilization most materially and to shorten and embitter human life. Consider for a moment the order of importance of human activities. Our business here is to be better human beings—to be better and to leave behind us those better than ourselves. Unless the people are improved by it, civilization is a failure. The whole use and purpose of every thing we do, from the work of the farmer to that of the poet, is to make better people. The important time to improve people is in youth, because, Weissmann to the contrary notwithstanding, that improvement is transmitted; the growth that is made before reproduction is the most essential; and the growth that is made afterward is most valuable as it affects the young. These years of youth most vital of all to true progress, are necessarily passed at home, and therefore the home is the most important place in the world. The highest duty of the state is to so legislate and administer as to make good homes, for it is only a larger home, and for the same uses, that the state exists.

In this most important place, in these most important years, all our lives are passed, and according to the condition of our household economy are our whole lives modified. The effect of our ignorance and indifference

on this vital system is to allow it to remain in such a condition as to be largely responsible for the unhappiness of the world. This the social student can see plainly enough, being accustomed to scientific thinking —to perceiving the relation between cause and effect, and to that invaluable habit of the scientific mind of accepting, without prejudice, *all* truth as important. But the popular mind cannot see as he sees, and the only difficulty which lies in the way of spreading a better understanding of this great subject—this allied group of sciences, arts, and crafts—is the lamentable fact that the subject is wrapped in densest prejudice. Ignorance is a slight obstacle, easily removed; a condition of healthy ignorance is a promising one, but to have the whole case prejudged,—already labelled "Commonplace—we know all about it," and laid aside, —this is an almost insurmountable wall.

An operation like that whereby the skull of the idiot is cut and lifted so that his brain can grow, will have to be performed in some ingenious analogous manner, before the general mass of domestic conservatism can be made to realize the nature and value of the very place it holds.

Personification stands in the way; personification, the mark of the child and the savage; that which personifies rock and river, cloud and star; and which seeks retaliation on the chair that is fallen over. In the savage mind, there is no power to generalize. He can say "good stick," "good meat," "good man,"—but "goodness" has no brain-cell ready to hold it. To generalize, however hastily and crudely, marks growth in mental power. Here, in household economy, most of us are still in the stage of untutored and untutorable savage. We can say "my house," "my

mother's house," and "Mrs. Jones's house," but THE HOUSE we have no brain cell ready to hold.

In a field of thought which throbs and teems with personality, as does this one, it is harder to think fairly and clearly than in some new and abstract science like chemistry.

Every detail mentioned in our work—and our work must deal largely in detail—fills the mind with crowding memories, pleasant, funny, exhausting, always personal. In touching on matters of detail in household economy, every woman who hears will feel the temptation to receive the thought with a strong personal color, and, perhaps, have her feelings hurt. If, for instance, I state that the average grade of home-made bread in America is 70 per cent., or 30 per cent. below par, some will feel that their mother's product in that line is insulted, and others that their mother's special triumphs languish unacknowledged. Yet nobody's mother is in question. The question is the average grade of bread in America. There is no more occasion for one to call to mind their own grade of bread than when we are told that our average length of life is thirty-six years, to instantly assert that our grandfather is eighty-three.

To the study of the subject before us we must bring all the resources of the scientific mind, carefully resisting any impulse to personify facts.

There is room for feeling, deep and earnest feeling, for the condition of Household Economics furnishes not only food for thought but food for laughter,—and for pain too deep for tears; but think and feel as we may, let it be general not personal.

We shall find in the definite study of the larger course these lectures are to outline, that authorities

upon it are few; and in varying degree partial and unsatisfactory, as regards Household Economics *per se*. The most monumental work—that which takes up woman as a whole and gives her natural history from the beginning of time—is *Das Weib*, by Dr. Herman Ploss, finished just before his death in 1891, and covering every phase of her life from the cradle to the grave,—girl, maid, wife, mother, widow, being treated anatomically and physiologically, as well as in all other ways. To this one may turn as one turns to encyclopædia or dictionary, certain that all ascertainable facts are there, and that the patient indefatigable German has given us a record that will serve as reservoir on which to draw for the present, and as data for a future work, in which the bearing of this mass of information will be more clearly seen, unhampered by the German temperament and its limitations, the larger thought of a larger age making deductions more in line with absolute truth than some of his.

Next in authority, we have in *Man and Woman*, by Havelock Ellis, the best English presentation of the subject, as the Anglo-Saxon scientific mind has summed it up, facts being given and deductions left chiefly to the reader, the compact volume holding many of the facts included in the larger work of Ploss. In our own country, one of our most honored names as scientist, Lester F. Ward, in his work on *Dynamic Sociology*, gives, though limited to a chapter or two,[1] the broadest and most intelligent handling the subject has ever received. No sharper arraignment of the inadequacy of women has ever been made, nor any more inspiring demand upon her highest faculties. The faith in what

[1] *Dynamic Sociology*, by Lester F. Ward, vol. i., pp. 552–61 and 655–67.

woman is to do is tremendous, and the call to higher action like the sound of a trumpet.

It is an associate worker with Mr. Ward in the National Museum at Washington, Mr. Mason, who has added to this a volume on *Woman's Share in Primitive Culture*, in which the development of the peaceful arts and of domestic duties is made plain. Herbert Spencer in the beginning of his great system of philosophy, divides the life-history of civilization into two periods: militancy and industrialism. In the first, as every early record from that of cave-dweller up shows us, men and women were side by side in the war with nature and the war of man with man. But as soon as both were sufficiently subdued to allow time to think, the era of industrialism opened up, and there came gradually the birth of the great occupations of all civilization.

Crawling up and out from primeval ooze, on through the myriad stages ending in fully differentiated man, the new science, anthropology, gives us every step of the way, and for long it is absolutely side by side, with no more difference in hunting and killing power than lies to-day between lion and lioness, or between the tiger and his mate. But as the brain ceased to be a mere rudimentary organ with a few faculties in evidence, and took on deeper and deeper convolutions, the instinct of *care*-taking showed itself, and the world's first housekeeping began.

Ten divisions of employment discover themselves, and the rise and progress of each is shown in many ways. History, language, archæology, folk-lore, and ethnology join hands in giving us the sum of all—the modern woman, whose voyage is still in troubled waters and who needs a chart hardly less than did the first provider for the wants of human kind. Standing

at the very edge of time, the first food-bringer cast about for means to handle the fruits and seeds which could not at once be consumed, and planned how best to secure a more uniform supply of each. From the one need came her invention of the mortar and of the upper and nether grindstones, the precursors of the great mills that do her work to-day. From the other grew husbandry and all means for preserving food.

It is at this point that there enters upon the scene the domestic cat, caught while young and reared in the house by the wise woman who had seen on what fare the young wild cats subsisted, and who knew that in taming them lay the safety of her stores of corn from termites and from field-mice and rats. With the meeting of one need came another; pottery in all its forms being the necessity that went with the preparation of food, the ornamentation of this pottery being the next step forward. Weaver, skin-dresser, potter, general beast of burden, jack-at-all-trades, artist, linguist, founder of society,—these are the divisions she made for herself, and under which the anthropologist of to-day considers her. How she learned her lessons we may all imagine, putting ourselves in her place and picturing the awakening of her mind before the growing needs, as cave gave place to hut and hut to the dwelling that in its gradually refining lines meant in the days to come such flower of all past growth as Athens gave us in the Parthenon.

There are many of these domestic industries still almost as rude and primitive as in the beginning, nor does any one appear to find this singular or containing any reproach to women, who certainly have deepest interest in discovering the easiest way for every necessary daily process. This applies not only to industries

and utensils, but also to processes ; even the intelligent housekeeper still talks about "luck with her sponge cake!" *Luck!* There is no such word in science, and to make sponge cake is a scientific process!

In each industry which developed in the hands of women has been the same story. Wherever invention could work, gradually all that gave the thing its individual character has passed from the hands of women to those of men, and she has reverted more and more to the earlier employment, the mere provision for absolute daily needs, which the farmer's wife, for instance, meets to-day, often with little more outlook on or knowledge of larger life than that owned by the first cave-dweller.

Buckle in one of his summaries,[1] wrote a conclusion more than once repeated: "Women are far more conservative than men,"—and this fact, to which most close observers bear witness, has very plain reasons for its existence,—being due absolutely to the narrow, unvarying range of the duties in which she is held.

The division of labor between the home and the world has also been the division between the woman and the man; and in this there is deep biological reason. All productive industry began with women, because of the constructive energy of her nature, the anabolism of her sex. To acquire and preserve is the primal distinctive quality of the germ cell as distinct from the sperm cell, and to acquire and preserve is still the power of woman. When vivaparous maternity called for new effort on the part of the mother to provide for her offspring, that effort was made. The need of the offspring is the minimum of the mother's exertion, from the insect and reptile to the human mother of to-day. Here is where the retarded development of

[1] *Fraser's Magazine*, April, 1858.

household economy strikes at the deepest roots of life. Our mothers, over-burdened and perplexed, spend in defective methods of labor the strength required for their primal function, and, because of this, the race, in the most literal sense, is "nipped in the bud."

That woman as a sex should hold the office of feeder and clother and keeper of life is right, wholly right; but unless the processes followed are abreast of the age the end is not fully attained.

The industries which began in her strong, wise mother-hands have been taken from her by her sons and carried out to fuller differentiation than was possible in the home circle. This was natural, but it is to be noted that the destructive energy of the male was only turned to construction after the fixed home and its demands required of him a share in its activities. Slowly the slayer ceased to destroy and learned to create,—slowly and partially and always from her.

The ascent of man, viewed economically, is a definite progression—an endless procession—from the home up and out into the broader and more directly independedent occupations of the world.

The home is the birthplace of every human thing. Out of it has come all that makes us human in the broader sense of the word. And though it cannot and should not expect to retain within its walls any industry which calls for wider coördinate action with research and experiment, yet the industries necessarily contained therein must be brought to our present level of economic advance.

We cannot afford to have the cradle of life in an inferior or defective condition; else is the life that comes out of it malformed and defective also.

It is to point out something of the length and breadth

and depth of these considerations,—to trace the origin, evolution, present relation, and apparent tendency of this intensely interesting, valuable, and yet almost unknown subject of Household Economics, that these limited and condensed lectures are offered.

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CHAPTER II.

THE HOUSE.

What is a House?—Relation of House to Human Life—Value of Human Production in Proportion to Durability and Usability—Organic Structure of the House with its Evolution—The Kitchen and Derivatives—Bedroom and Derivatives—Parlor and Derivatives—Relation of Differentiation and Specialization in Building to the Same Processes in Social Evolution—Hut to Hotel; Tent to Tenement—The Typical Farm-House—Industries Represented—The Rudimentary Shop—Effect of Habitat—Soil, Location, Foundation, Elevation—Topographical Maps—From Isolation to Aggregation—The City Beautiful.

IN studying the house as an integral part of human life—the housing of humanity as a branch of social economics—we must approach the subject with a full recognition of what this external manufactured world means to humanity.

What is a house? What relation does it bear to a human being? Is there any connection between you and your house in size, color, form, arrangement, location, decoration, furnishing? Would it make any difference to you if you lived in a house which was painted pitch black inside and out, or unbroken white, or fire red? Would you mind if it was an acre in extent and seven feet high, or ninety-eight feet high and seven feet square? Would you mind if it was all one

room sixty by sixty, or cut up into many apartments of nine by nine? Would you mind if it was as long as a rope-walk, or triangular or an ellipsoid?

If it is plain that these things do make a difference, it is plain that there is as direct a connection between the house and the man, as between the shell and the shell-fish.

Now, how if there were no house at all?

Imagine for a moment this world of people as they are now, with all their delicate machines and processes, all their garments and ornaments and treasures of art, and take off from them every roof and wall,—take the houses out of the world!

Humanity must needs revert to that tent and cave period when the arts and industries were of the order which could stand weather,—a far simpler form of social organism.

As well unfeather the birds, unshell the turtle, unskin the body, as to unhouse mankind. The house is the essential skin, bark, shell, outer covering of the human organism. Here we touch on an enormous truth, long lost sight of in the anti-natural spirit of the dark ages and still hidden from us by the long habit of our minds in accepting the arbitrary distinctions of these earlier days.

Remember always how science studies connection, relation, shows how things go together,—while the untaught mind sees only detached facts. To the average mind to-day, the home is only Mrs. Jones's house or my house; as a part of human life it is unknown. This personifying of fact is a true savage instinct,—grown out of as the mind learns to generalize.

The fact is that the manufactured world is as much a part of human life as feathers are of bird life.

Imagine again for a moment, not only the houses gone, but also all things made by man gone,—books, clothes, tools, utensils, vessels, vehicles,—all that man's brain and hand have transformed from raw materials into parts of his life. Nothing on earth but the sub-human creation, and the crowding, helpless human beings, robbed now not only of their skins but of their very structure,—their organism itself! We should be reduced to the mere protoplasm of humanity, living constituents—the stuff of which humanity is made,—but not humanity any more than bricks are a house or timbers a ship.

See how, to assume human relation—and humanity, we know, is not a mere aggregation of men but a relation of men—these numerous cells in the disorganized organism would have instantly to get to themselves the clothes without which their personal existence is not; the tools without which their organic existence is not; the utensils, vessels, vehicles, and means of communication, without which their structural existence is not, —and so become *humanity* again.

The manufactured world is as much a part of human life as scales are a part of the fish. The growth of humanity has evolved material structure and tools, precisely as the growth of any organism evolves its structure and tools. But mark here the immense superiority of our degree of life. In the lower orders each individual body must make its own fur, horns, claws,—whatever it needs, made at its own individual expense, permanent and undetachable, having to be duplicated by every other of the same species, and serving as a modifier and limit of growth. The tusks of the elephant modify his mouth, head, neck, body, legs, motions. They modify the elephant. Precisely

so would the tools of a man modify him,—as does the blacksmith's hammer the blacksmith's arm,—if he had but one tool and used it all the time. But our racial advantage here is immeasurable. Our tools and our houses,—the further developments of material structure required for human life—are durable, detachable, exchangeable. Our bodies, meanwhile, not having to be modified too exclusively by any one tool, retain their ever increasing potentiality; and so their beauty and their power.

So in our houses; while the house to the human creature is as essential as the carapace to the turtle, it does not have to grow on him and he does not have to carry it around on his back. We, the living constituents of humanity, can make vast and lasting homes, temples, cathedrals, palaces, in which human life can ebb and flow and reach toward higher things. Human production is valuable in proportion to its durability and usability; a book, a jewel, a statue, a temple, a bridge, or a ship are far more valuable than are products of a more perishable nature, or whose usefulness is restricted to a single individual. One man can use a dozen tools, and use them well. He can, by virtue of his humanness, cross water, dig in the ground, hunt, fight, build, decorate. It is what it would be to an animal to be able to assume at will the power of a dozen other animals. It multiplies the chances of living manifold; it makes man "better than the lower animals by as many as there are of him."

With this in mind, think then of the importance of the home, the outer body of the human soul! Our bodies of flesh are but limited vehicles for the expression of the personal soul. Man was not content with the body of flesh. Human development requires com-

mensurate development in manufactured things. We need to make quite clear in our minds the limitation I imply of the personal soul and the intimate connection of the man-made world with civilization.

The human being of to-day has functional ability and desire for activities which involve numbers of other human beings, and which require, as a vehicle for exertion, numbers of human things.

Humanity consists of numbers of human beings in organic relation. Organic relation requires functional interdependence and structural connection and communication.

These are clearly shown in the complex activities of civilization, so absolutely interdependent,—and in the marvellous methods of interaction evolved by the inventive brain and executive hand of man. Without these complex activities we should not have the human brain; without the manufactured conveniences we should not have the complex activities. The human brain creates, maintains, and is dependent on these things which are at once its product and its producer.

Into the houses which we make are born our children, and the houses have a hand in making them. Where we live and how we live has its unavoidable effect on what we do and how we do it. The highest and most enlightened human soul would naturally make for itself noble and beautiful houses, rightly situated, built, arranged, furnished, and adorned. So, in turn, would such houses tend to produce and develop high and enlightened human souls. It may be objected that the practical limitations of life prevent any possibility of having such houses, and that it merely fills our souls with unnecessary distress to

hear of such unattainable ideals. To which I reply that we are to study Household Economics—that which is an abstract truth, with its derivation and direction and rate of progress ; and that existing errors in living do not affect the truth of Household Economics, any more than cripples and invalids affect the truth of physiology and hygiene.

It is plain, then, that the house must grow as man does, from hut to palace ; from the solitary, unorganized life to the higher form. As the individual develops, more and more space, more and more personal belongings becomes the necessity. Talk as you will about the tub being sufficient for Diogenes, or the cell for the thinker, we all know better. Roger Bacon in a cell might think out gunpowder, a thing of doubtful beneficence, although undoubtedly one engine of progress,—but imagine Pasteur or Edison or Tesla held to the same limits ! No, the modern scientist must have not only a laboratory but a series of laboratories—rooms of all sorts for all sorts of mysterious purposes, and more and more space for the human worker is the cry from every side. Here and there, for the mystic and ascetic, cells may suffice ; but even they live that life to-day only by virtue of the fact that the larger life of growing humanity has made such variation less damaging to the general trend forward.

Imagine a dozen great men—a Gladstone, a Ruskin, a Watts, an Emerson, a Huxley, a Spencer—suddenly set down each in his small round hut, with no more appliances of civilization than had the first struggling hut-dwellers. One of two things must happen : in the profound barrenness and nakedness of such existence the soul would shrink, retrograde, and so gradually lose that toward which the generations have worked,

or instant organization would make for the abolition of these limitations and the substitution of something as much better as could be wrested from circumstance. The hut for any civilized humanity has become forever impossible. Even the lowest tenement house, with its swarming humanity to whom we supply the worst and lowest grades of civilized appliances, is, so far as it has to go, a higher type of dwelling than the hut, or even the cottage of poetry and prose. At first, we may be inclined to call the cottage a higher type ; but is it not rather the perfection of a lower finished one?—like the sea-anemones, for instance—a lovely mass of color swaying in the ebbing or the flowing tides, but fast to the rock and incapable of higher forms—a mere dab of undifferentiated protoplasm. The tenement, foul as it may be, at its worst still holds the seed of higher growth, and in time is to evidence the highest skill of man in all that makes for the well-being of the human creature. As it stands to day, it is in great degree the expression of the type of soul within its walls, and by reflex action it reproduces the same type incessantly.

The house makes or mars its tenant far beyond what we have dreamed, and by long living in its limits we conform to its structure and actual automatic action sets in. Witness the housekeeper transplanted after years of one dwelling into the unfamiliar spaces of another,—and the painful jounces and jogs, as she walks off of steps or steps high on plane surfaces,—her whole organization long declining to readjust itself to new conditions. The old house still holds her and, unlike our chambered nautilus, which having "built up the idle door" through which it passed to the new abode "knows the old no more," our

higher organized human carries the imprint of the old in every nerve, and fumbles unconsciously for the vanished spaces and places.

Turn now again to our hut, the seed of a house to be,—about which, as his needs increased, the owner gathered other huts, each for its distinctive office. Take the English manor-house of the last century, or the ideal American farm-house of our Colonial period, with its crowding offices, each a rudimentary shop, and every industry,—cooking, weaving, dyeing, brewing, shoe-making, tailoring, and the rest well in the foreground; compare it with the modern city home in which only the first of all these industries has found part. Concealment of all these necessary functions is now a law, and the beautiful house,—so far as structure can bring it about,—hides all outward traces of these lower activities, perfecting them in every possible way, but forbidding overflow and intrusion beyond their own fixed limits.

Come now then, to the home as it stands to-day, and its basic necessities, and we have at once three divisions to treat: The kitchen, The bedroom, The parlor } and their derivatives.

In the nature of things, the kitchen comes first,—a stomach for the organization to be fed. It was as stomach that the cell began, and into whatever organism it may develop this primal need remains unchanged, simply taking on more and more complexity and requiring a type of service unknown and undreamed of by a simpler and more primitive people.

The structural development of the house follows precisely the similar evolution of humanity,—just as in any other body. Function comes before organ, we

know; hearing made the ear, and so eating made the kitchen. The kitchen is as much a part of human nutrition as mouth and teeth are, and the expansion and differentiation of the kitchen mirror absolutely our nutritive wants and habits.

The bedroom and all its derivatives follow the enlarging personality of the individual. The parlor, and largely the dining hall, speak not only of personality but more of common needs,—a meeting-place. Our best and highest go always to the place where most people are.

The kitchen and its derivatives, then, will include all such places as those for storage of food, for all purposes of cleansing, and for every office connected with the preparation of food. In close connection with it must be the dining-room with its perfectly appointed receptacles for china, glass, silver, table linen, and whatever else is needed in the finest serving of food. With these we include a butler's pantry with its hot- and cold-water pipes and sink for the washing of those dishes which are likely to fare better here than if transported three times a day to the kitchen.

For the bedroom must be included, bath-room, dressing-room closets and all that the personal and most private side of life demands and should have. Personal rights have thus far had small space in the architectural scheme of the home. A separate room is the right of every human being; a place where one can lock the door, be safe from intrusion, and in silence and freedom gather strength for the next thing to be done. For children this is quite as necessary as for their elders. Half of the friction and much of the ill-health of humanity come from lack of knowledge of this law, and sensitive children for whom these rights

are ignored grow into invalidism or chronic irritability of mind and body. There are some details as to this, out of place here, but coming later on in our discussion of furnishing.

The parlor with its derivatives includes, in the highest type of house, the larger parlor or drawing-room for the reception of companies of people, the reception room, the library, the music room, the picture-gallery,—all that makes up the widest beauty of living. The house is a growth ; as the soul grows and its needs increase, it reaches out in all directions for that finer food on which the higher living must grow, and the house must, in the nature of things, shape itself to meet these needs. If it does not, there is cramping and dwarfing, and the feet that should go forward are crippled by a self-made system, no less certain in its effects than that which makes crippling a mark of high birth for the Chinese woman.

The house is not only the result of character, but it also determines the character. The effect of habitat is one great factor in the making of any organism. The physical geography of a place determines its history, and the story of a race is governed by the river on whose banks it settled, or the mountains which shut them in, and in shutting out other tribes and peoples gave them time and freedom to develop their own peculiar characteristics. There is much more than mere coincidence in the castle on the hill and the cot in the valley. The castle, in the beginning, seeks the height that the robber baron within may swoop down on the prey below, or in turn give refuge to his own dependants driven out by a like-minded marauder from another fortress of the same order. Under the castle roof is born the soldier, and sometimes the great administrator ; un-

der the cottage roof the follower of all peaceful arts, and though these facts may be interchangeable, our thought of each remains the same.

It is so with all literature. The masters count the house the expression of the human soul that has planned it, and often as we read their picturing of the house, we see the soul with a clearness no other words could give. Take *Mariana in the Moated Grange*. How should she not be weary, poor soul!

> "With blackest moss the flower pots
> Were thickly crusted one and all;
> The rusted nails fell from the knots
> That held the peach to the garden wall.
> The broken sheds look'd sad and strange:
> Uplifted was the clinking latch;
> Weeded and worn the ancient thatch
> Upon the lonely moated grange."

In Poe's *House of Usher*, the horror of it infiltrates itself in every inch of the fated and fatal structure; and the *House of the Seven Gables* seems more alive than the gaunt form of its latest owner, the last of the Pyncheons, poor old Hepzibah, in her unequal warfare with an objecting world. We could spend hours in recalling the settings of many a tragedy or comedy, the great descriptions which have made certain houses the synonyms of their owners' lives; but what has been said must suffice as hint of work you can all do for yourselves and which is part of the fascinating literature of our subject. *The House in Poetry and in Prose* might easily fill a volume, and once collected between covers, we should have abundant evidence of the unity of house and soul and the absolute dependence of one upon the other.

We come now to the practical side: the points first

to be considered in the selection of building site, and here we meet the sharpest of limitations, since only merest hint can be given now of all that would come under this head in any full course of instruction. Soil, location, foundation, elevation, are the first four considerations in building and one must often determine the other. In the matter of soil, clay bottom means the impossibility almost of perfect drainage; while a gravelly soil at once secures it. If it were possible to plan beforehand in the building of a town, experts could be called in to determine the most healthy locations for the homes, leaving the less desirable portions for the business houses, which are occupied only the smaller part of the twenty-four hours every day. A good topographical map of town and city should be not only in every real-estate office, but available to every prospective builder and buyer. New York has such a map made by a famous engineer, General Egbert Viele, and on it every spring and water-course, swamp, clay-bed, and bit of made land are plain to see; but few other cities have anything so valuable and suggestive.

Until the time comes when municipal government means the employment of experts for all such needs, we must, as far as possible, study for ourselves the nature of the soil and plant our house on a hill, it may be, or at any rate, on a rise of ground from which all sewage and waste water can easily drain away. If it must be on the low lands, then seek a sandy or gravelly soil. Even with sand and loam on the surface, underlying clay-beds often exist, and standing water will mean clammy moisture on walls and chill in every closed room. Malaria follows naturally, being the child of all shut-in and poisonous conditions. The dwellers on

low and undrained lands are the pill and patent-medicine takers,—and there is no other civilized country that consumes so many tons of pills, so many thousands of gallons of tonics and bitters as does our own. Pure air, pure water, plenty of sun,—these are the natural tonics, and our house must stand where it can have a full share of all.

"The well are made sick, and the sick are made worse for the simple lack of God's pure air and water," a famous physician, Dr. George Derby, wrote long before many people had thought much about it, and the reports of the Massachusetts Board of Health are full of facts that confirm his word. The corps of physicians who began the work were not only trained scientific men, but enthusiasts as well. The reading of one of these reports would perhaps go further towards creating the new sense of what location really means than could any general statement. Location, with all that it includes, is the foundation of public and private health. In twenty-two years of almost continuous war, England lost 79,700 lives; in one year of cholera she lost 144,860 lives, or nearly double the number lost in twenty-two years of war,—these deaths being the direct result of bad drainage and foul sanitary conditions. Many references that could be given here will come more properly under the head of plumbing and drainage, which we are to consider in another place.

If it can be helped, and it must be helped if possible, do not build in the midst of sordid or ugly surroundings. Look out upon beauty, if it can be found. If it cannot, seek a spot as far as possible from the sight of ugliness, since we know already the effect of habitat on human kind. Above all, place the house so that full sunshine may be in each room during some part of the day.

Allow no tree to stand so near that it shuts out either air or sunlight. They can be near enough for beauty and for shade, but not where they constantly shed moisture and make twilight in our rooms at mid-day. Disease flies before full sunshine. For the house shut in by trees, consumption and scrofula are the natural products, and you will find in the reports of the Massachusetts Board of Health, already referred to, a series of confirmations of this statement.

Next comes foundation, a matter of indifference with many builders, whose only thought is the cheapest thing on which walls may rest. With bad mortar and bad laying of the stones the whole thing presently settles and gives to the owner or renter uneven floors, walls out of plumb and all the weariness of submission to an unnecessary evil. The best foundations are made by digging trenches and laying in them large, flat stones, far wider than the walls they are to support, covering these with the rough stone or rubble, as evenly as possible, each course being laid in common cement. A coat of cement should be given to the outside and mortar and whitewash can finish the interior. Bricks are often used as foundation for frame houses, as they give a better finish to the cellar wall, but they also have the primary layer of flat stone levelled with cement. They can also be laid on asphalt. Firmness and dryness are the prime needs, and whether the structure be palace or cottage, these never alter.

The plan of the house includes beforehand not only all that has been said as to location and its bearings, but also the settling of the cost and an intelligent idea of the special family needs. Here a woman's judgment is absolutely essential. It is the woman who lives chiefly in the house and who, if common sense were

brought to bear, would soon put an end to the type of thing the average builder offers her. Why should we perpetually go up and down when going sideways is so much easier? Why should we accept stupidly planned and inadequate closets or no closets at all, and kitchens in which everything is calculated to bring the greatest unhappiness to the greatest number? The utmost convenience in every inch of working space should be the law. The difference between a pantry opening close to the sink and one at the opposite end of the room may seem a small matter; but when it comes to walking across the room with every dish that is washed, the steps soon count as miles.

The successful workman, whose art lies on the rapid combination of materials, arranges materials and tools so as to be able to use them with the fewest possible movements,—and the difference between a skilled and an unskilled workman is not so much the rate of speed in motion as in the ability to make each motion tell. So long as we are compelled to many industries which hardly belong to the home, so long we must seek in all possible ways to give the maximum of comfort and convenience and the minimum of labor. To this end, we need to study houses as they are; note their discrepancies and defects and plan for better things. There are admirable collections of plans now offered, and as an introduction to their study I know of nothing better than a little book by a well known architect, E. Gardner, of Springfield, Mass.,—*The House That Jill Built*, in which Jack, realizing his unfitness for the office, retires into the background, emitting now and then a modest suggestion as to his personal desires, but content to leave the main features in the hands to which they naturally belong.

The drawing of plans is a delightful amusement, as well as an education, since even one, if carefully studied in all its bearings, opens up new fields of thought and shows better than any mere words can our present limitations and the better things toward which we move. In the formal course of instruction to which this is merest hint of introduction, plan drawing is obligatory and each student makes several, beginning with the crudest and cheapest form of house,—such a one as might be set up on the prairie while pre-empting a quarter-section of land, supposing there were any left to pre-empt, and ending with the best conception of the beautiful, spacious, well ordered home. There will be strange lapses and gaps in these early efforts, but no stranger than that of a great man before us, since Thomas Jefferson, who made his own plan for Monticello, left out the stairs altogether, and had to tuck them in at the last as best he could.

It is worth while for every one of us,—no matter how far off a house may seem—to sit down with pencil and paper and think out on the paper the thing that means to us a house. Mathematical correctness has little to do with this first feeling out. It is a memorandum merely; the catch words, as it were, of the full thought; but having once done it an interest in houses *per se* will be acquired, such as no other method can give, and the first and most difficult step will have been taken towards that new conception of needs which is by and by to make over all our ugliness and crudity into the beauty which is the right and reason and necessity in all building.

There is one vital error current among us on the subject of housing humanity; it is to the effect that *city* building, city life in general, is essentially bad.

We say with the pleasant finality of such sayings: "God made the country and man made the town." "Back to the farm!" cries the economist, the moralist, and the philanthropist, and the current philosophy deplores the tendency of the population to "flock to the cities."

Now, in truth, God made the town in a far more vital sense than he made the country. The country is simply the raw material, the undeveloped substance of towns. We might as appropriately say, "God made the paint and man made the picture," or "God made the piano and man made the music." The city, as an expression of man's higher life, is in closer relation to God than are earth and trees. As to the specific evils of city life,—some of them, as dirt, disease, and immorality exist in equal proportion to the population in the country; while their accompanying virtues, those public works to provide for cleanliness, health, and morals,—these are physically impossible in the country.

The evils of overcrowding, of noise, of nervous strain, and the like, are not civic evils, but economic evils, which will pass when we are wiser.

The farmer's wife goes mad in her isolation, silence, and lack of stimulus, just as the citizen's wife has nervous prostration under opposite conditions. The farmer breaks down under the strain of paying the mortgage, just as the citizen breaks down under a closer competition. These are economic evils, not due to city or country.

Civilization—the citying of humanity—means much. The development of the individual is commensurate with the development of society, and that depends upon the development of the arts, sciences, and industries which constitute the functional activities and

maintain the structure of society. And the development of these arts, sciences, and industries requires quick, free, and general communication between numbers of men; who must therefore live near together and in conditions of public peace and carefulness. The fuller the provision of the city for the personal wants of its constituents, the freer the interchange of power which builds the human world.

Follow your history; the nation without a city is no nation at all. Isolation is not freedom. The savage walks in danger; the citizen lives in peace,—peace born of numbers and co-ordination; and peace means plenty.

We speak of the *ugliness* of cities—the *beauty* of the country. As the garden to the desert, as the palace to the quarry, should be the city to the country. Have not our highest and most cultivated thinkers, poets, artists, sages, found "the most beautiful of all earthly places" in a city—Venice crowned Queen of the Adriatic and celebrated in a thousand songs and stories. Was it not a city, the New Jerusalem—which the prophet saw descending out of Heaven to usher in the reign of peace on earth? What order of beauty it is that belongs to our best thought of the city is beautifully put in a poem called *City's Beauty*, by Mrs. Charlotte Stetson.

CITY'S BEAUTY.

Fair, O fair are the hills uncrowned,
Only wreathed and garlanded
With the soft clouds overhead,
With the waving streams of rain;
Fair in golden sunlight drowned,
Bathed and buried in the bright
Warm luxuriance of light—
Fair the hills without a stain.

Fairer far the hills should stand
Crownéd with a city's halls,
With the glimmer of white walls,
With the climbing grace of towers;
Fair with great fronts tall and grand,
Stately streets that meet the sky,
Lovely roof-lines, low and high—
Fairer for the days and hours.

Woman's beauty fades and flies,
In the passing of the years,
With the falling of the tears,
With the lines of toil and stress;
City's beauty never dies—
Never while her people know
How to love and honor so
Her immortal loveliness.

When we speak of The City Beautiful, it is not a series of farm-houses, or an expanse of prairie of which we think—nor a collection of cottages each with its traditional vine, nor is it a collection of suburban villas. All these are protoplasmic, so to speak. The city is ganglion, and means the work of the ganglion. Where great public uses are to be served, certain essentials of fine architecture are at once possible,—size, durability, adaptation of form to function and character, and full provision for multiple occupancy.

The passage from the hut to the great modern hotel; from the tent to the tenement,—means the passage from savagery to civilization.

There are cities so fair that he who looks upon them feels the heart swell and the eyes fill with delight. "See Damascus and die!" the word of the prophet to whom it gave that conception of the heaven most to be desired, has transferred itself to modern phrase, and repeats itself in Florence; above all, since in the Italian

cities of our time beauty has had a larger share than in any other day or land since Greece gave us its highest type. The City Beautiful is for us still to come, —that "dream city," of the Great Fair foreshadowing what it is to be.

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CHAPTER III.

THE BUILDING OF THE HOUSE.

The Place of Architecture in Household Economics—Relation to other Arts—Primitive Architecture and its Development: Domestic, Civic, and Ecclesiastic—The City and the King—Ancient Architecture, Public and Private—Herculaneum and Pompeii—Character of Oriental Home—Effect of House on its Occupants—The House and the Family—Confusion of Domestic with Industrial Architecture—Rooms and their Relation—Existing Conditions of Domestic Architecture in Europe and America—Built to Live in and Built to Sell—Limitation of the Private Home—Gridiron Topography—Need of Combination and Juxtaposition—Essentiality of the Separate Home—Our Present Trend.

WHAT the house is to the household has been indicated in the preceding pages; but there is room for further explanation as to the architecture thereof. The size and shape of your mansion are of as much importance as the size and shape of your body; and beyond that, the materials and methods of building are of as much importance as the quality of bone and muscle and their just combination. The architecture of a race, as every other art, mirrors its character for good and ill, for advance, stay, and retrogression.

We have been too long accustomed to detach soul

from body and to claim that their progress was not only independent but diametrically opposed. A sane mind in a sound body is as truly connected as a sane household in a sound house,—not more so.

National character, modified by conditions, may be read in the nation's architecture ; and in our American architecture, be its conditions what they may, the reading is but faintly hopeful. So far, condition is more apparent than character. Our haste, our wide invention and narrow execution, our short-sighted economy in essentials and low-bred profusion of cheap ornament, our laughable ignorance of the ABC of true art,—all these may be seen in our architecture ; but there is much more noble material in the American character which is yet to be seen. Right here, I wish to draw attention to a parallel form of art, and show how evil in one direction works evil in another. Women are not yet largely architects, but they are largely critics, potential purchasers, and what is even more, educators of purchasers. Now while our women follow the lead of fashion in dress as unintelligently as they do, that characteristic of sheep-like submission will distinguish their children, and the educational influence of such a low taste keeps back the art sense in their families. Therefore do we go on following fashion in architecture as blindly as in dress, and fail to develop that firm, clear, intelligent taste which would soon line our streets with beauty instead of with blatant ugliness.

Architecture is one of the first home arts ; quite the first to reach any eminence. It was the first expression of the social spirit ; weapon, dish, and tool were largely personal ; the temple early grew as the common covering of many souls and the expression of a great idea.

Sculpture is the direct outcome of architecture, and was long used only in connection with it. Painting began upon its walls, and still is hung there, although now removable. And all the other arts are traceable to architecture, directly or indirectly,—together with every other form of human progress,—in that the shelter of roof and wall is needed by them all, and the relative effect of structure good and bad is always shown in them.

Races vary in the pre-eminence of one and another art; but a certain proportion must be maintained. That Italy, mother of arts, shows masterpieces in them all, proves only how inevitably they help each other.

Of the three divisions of architecture in all ages,—domestic, civic, and ecclesiastic,—domestic was latest in its development, and ecclesiastic has maintained its precedence down to modern times, the civic gaining in importance and in beauty as nations made their slow and hesitating progress toward civilization. Back in the Stone age, the cave-dweller piled up mounds of stone as an altar to unknown forces before which he trembled, and finally turned them into altars on which he laid sacrifices to the same dread power, only to be propitiated by blood. Over graves of kindred he reared the same sort of piles, as memorial and as protection against evil spirits,—and thus began the first temples and the first tombs. The oldest known structures on the earth, the pyramids which for five thousand years have held their place, are simply monuments to the kings who sought thus to make their names immortal.

With the hollowing out of tombs in rocks came sculpture as a decoration,—and here too Egypt gives us our first records, stamping ineffaceably on every

inch of the material in which they wrought, their character as a people. Their art differs from that of all other nations, since having in the beginning formulated certain rules, they adhered to them rigidly. As a rule, when a nation rises in freedom and power, the arts rise with it; and if it falls, its art is lowered with it. Fourteen hundred years before Christ, Egypt in her mysterious Sphinx reached the highest point of development, and from that period on not a line changed. Kings and priests absolute despots; a people under complete subjection; every artist and worker the subject of immutable law,—all this produced one unchanging type. Added to this was the minute subdivision of labor, which then, as now, prevented any full and harmonious development of power. In their wall paintings, for example, one man prepared the surface, a second drew the outline, a third hollowed these outlines for sunk relief, and a fourth laid on the color. Then, too, the artist in Egypt was looked upon merely as an artisan and classed in the lowest rank. Art was chosen not from natural bent, but because the son followed the employment of the father. Not one has left a footprint that can be said to be strictly his own; and thus in temple and tomb, palace and private dwelling, the same sombre, heavy, restricted forms are all that we find. Assyria, India, China, may vary in form, but the type of work is the same, and undeviating, fixed regularity is the characteristic of each and all.

"Eastern art held by mathematical or mechanical proportion exclusively," writes Walter Pater; "the Greek apprehends of it as the main truth that it is a living organism with freedom of movement, and hence the infinite possibilities of motion and of expression by motion with which the imagination credits the higher sort of Greek sculpture. . . . In the works of

the Asiatic tradition, in the marbles of Nineveh, for instance, the form of man is inadequate and below the measure of perfection attained there in the lowest representation of the lower forms of life; just as in the lively reflective art of Japan, so lovely in its reproduction of flower and bird, the human form comes almost as a caricature, or is at least untouched by any higher ideal. To that Asiatic tradition then, with its perfect craftmanship, its consummate skill in design, its power of hand, the Dorian, the European, the true Hellenic influence brought a revelation of the mind and body of man."

Why have I quoted this? Because it is the word of a great art critic, who saw, like the modern historian of art, that only when the higher evolution of man became a part of the national thought, could art take its true place. Egypt and all that background of vast monarchies and dynasties had temples, palaces, tombs; but they had practically no homes. The myriads of human beings swarming like ants about the vast constructions whose building is still wrapped in mystery, ate as they worked and slept where they fell; or, if of a slightly higher class, returned to hut or low dwelling.

Through the Greek came the first possibilities of domestic architecture, and Grecian influence made that of Rome, and even affected that remote India, from which they in turn borrowed the best it had to give. But the life of the Greek was chiefly public, and his highest efforts in art were given to the temples of his gods and the buildings of the state. The ancient Greeks, according to Plato, had four wishes: 1st, To be healthy; 2d, To be beautiful; 3d, To be rich honestly; 4th, To be gay and merry with one's friends. To this last end, the dining-halls of their simple houses grew more and more elaborate in ornamentation.

The Greek, however, had no pride in the appearance of his dwelling, and the banquet hall soon depended

upon beauty of line and perfection of finish in structure rather than on any gorgeousness of furnishing. The Roman, whose conception of art came through the conquest of the Greeks, tended, on the contrary, more and more to extremes of luxury. The remains of Pompeii stand to us as their highest ideal. The Roman dwelling-house was in the beginning identical with that of Etruria and of all central Italy. It had Grecian characteristics, but the Italian atrium had no columnar supports for the roof, and it remained in use even after the Greek peristyle had been generally adopted in more public edifices. The house of Pansa at Pompeii is the one most generally familiar to us all and of the highest type of Roman domestic architecture. It includes both varieties of court, both atrium and peristyle being surrounded by chambers, and those of the upper story, with part of the lower, being lighted only through doors opening from the inner courts, and used as bedrooms, bare and undecorated. The larger halls were often vaulted and columns were introduced, not for support but as decorative members. Magnificent dining-rooms, great libraries, and galleries of pictures became prominent features, and many men of condition had private basilicas, or halls of justice, where private councils were held on public and private matters. The women's apartments had a court of their own, and while the sleeping-rooms were seldom much more than cubicles, there were offices of many orders,—spinning, weaving, and all household industries going on under the eye of the mistress. The city, then as now, summed up the best things the people knew and formed the background for the stately and noble civic life. Without it, the king would have been practically impossible, since from its focussion of

the resources of the country at its back his revenues were drawn, his armies recruited, and the progress of the state assured. To make the city beautiful was part of his kingly prerogative. Each city sought to rival its neighbor in the beauty of its temples and statues and public buildings. Each city entertained at public expense the artist, sculptor, painter, or architect, who brought with him a great name earned by noble work. "The artist is the only wise man," was a saying of Socrates, and the statue of the artist was placed near those of the gods. Neither fancy nor fashion could determine his reputation, but only the formally delivered judgment of the wisest men. Compare this with the standing in our own country of the best names we own, and you will have one reason why architecture for America, like other arts, is still in its infancy.

For the Greek, and in time for all who imitated him, the commonest things were made beautiful. As Pater well puts it:

"For them, every aspect of life is beautified by cunning hands. The thrones, coffers, couches of curious carpentery, are studded with bossy ornaments of precious metals effectively disposed, or inlaid with stained ivory, or blue cyanus, or amber, or pale amber-like gold. The surfaces of the stone conduits, the public washing-troughs, the ramparts on which the weary soldiers rest themselves, are fair and smooth; all the fine qualities in color and texture of woven stuff are carefully noted; the fineness, closeness, softness, pliancy, gloss, the whiteness, or nectar-like tints in which the weaver delights to work and to weave the sea-purple threads, is an appropriate function of queens and noble women. The very gods came down to help them make these things of beauty; yet every one of them ministered only to simple and healthy requirements, and there was no ostentation, no extravagance, no undue luxury, no vulgarity."

Thus it came to pass that the noblest architecture the world has known grew simply and naturally as a tree grows, and all the people knew its meaning, and honored him who built, no less than him who painted, or who added sculpture as the final touch of beauty.

As to the Oriental home at its best, it has some of the characteristics of the Greek, its open court and fountain, its narrow sleeping-chambers, and its specific apartments for women. All this, as it arranges itself for Oriental nations, you may see in turning over the pages of the authorities in the history of architecture, —sumptuousness of decoration being as certain as was the lack of most of the arrangements that to us mean comfort. That word belongs more truly to the Anglo-Saxon than to any other race, and has in his dictionary so large a place that it has left little room for beauty. One feature of this Oriental home, especially that of Palestine and Arabia, we may, however, well note,— and that is the life of the housetop, including the sleeping under the open sky. America has a summer hardly less torrid than the torrid zone itself, and though the suggestion will send a thrill of horror to the order of mind that declaims against "night air," we know that night air is all the kind of air that night can offer us, and that it must, in the nature of things, be better than a vacuum, or the deadly poison thrown off by human lungs. Sleeping in the open air is one of the prescriptions for consumption, and if it cures that disease, as we know in many cases it has, why should it not also prevent? It would be possible to reserve and arrange a flat, well guarded portion of the roof for this summer sleeping in hammock or on light cot, with an adjustable awning in case of rain. I have tried it during a New Jersey summer, to my own happiness

and comfort, and whoever lies down under the hush and the pervading quiet of the open sky drinks in a calm and refreshment all healing in its action and never to be forgotten. Take this hint then from the wise Oriental and add a new pleasure to living.

You will notice how among these ancient races there was little household architecture, because there was little household life. The Roman had more family life than the Greek and more family architecture.

The modern family is the body of which our new word "home" expresses the spirit, and of which our house is the outer shell. The intense development of this family spirit and its transmission of external organism, through primogeniture, give us a continuous family spirit wherein the generations are but links—not breaks—and where the transmitted dwelling-place becomes so identified with the spirit that the word "house" comes to stand for both. "The House of Usher" has a double meaning, and all through modern literature you will find the same use of the word,—a strong and true use.

It is a good growth, and means a nobler and more durable domestic architecture than has ever obtained when the house was built only for the transient use of a few people in one generation.

As to the existing conditions of domestic architecture in Europe and America, the advantage is in some points on the European side ; on others, with us. The European house, as a rule, represents good design, solidity of construction, beauty of finish, deadened floors, so that the upper rooms are not at the mercy of noises from the lower ones, and a general sense of harmony and proportion. On the other hand, the conveniences which all town-bred people and most villagers

in America take for granted are in the towns and villages of Europe almost unknown. I have in mind one of the most beautiful of homes in which I lived for months in Germany—a mansion most fair to look upon, with a staff of six well trained servants and a delightfully arranged series of rooms. Beauty was in every one of them, but the house had no bath-room and no decent system of drainage; its water supply was defective and of suspicious quality; and though a Heidelberg winter means snow and ice, there were no fireplace grates and no provision for heating beyond porcelain stoves. Personally I prefer these stoves to the furnaces which dry every tissue and are a steady invitation and welcome to grip and bronchitis; but there is a happy mean of which the Continent of Europe knows nothing.

The German kitchen, and that of Holland, is a delight with its wainscot of tiles, its beautiful order of arrangement and detail in store-room and pantry, and its systematized methods of work. But until we reach England, we do not, as a rule, find in southern or in far northern Europe what the American counts as essential to comfort in daily living.

In England, domestic service is of so high a grade that life seems easy, but whoever looks beneath the service finds work done under conditions that the American servant would regard as intolerable. The English kitchen of the cities is even more depressing than the American basement, and the use of soft coal as fuel makes an eternal conflict with saucepans. The average builder meets the desire of the average cook, who clings obstinately to his open grate and side oven, and who sniffs suspiciously at the new forms of French and American ranges and stoves, which with us are a

regular part of the newer plumbing methods and built into the house as a matter of course. The offices of a great English house make a colony in themselves, from the housekeeper's or house-steward's private sitting-room with all its dependencies of store-rooms and pantries, to the servants' dining-room and special quarters. But flagged passages, damp walls, and no provision for heating, save here and there an open grate, make a comfortless impression and send a chill to the very marrow of the American housekeeper. The newer houses in England—the fine ones of this generation—are ideal in beauty and comfort. Mrs. H. R. Haweis in *Beautiful Homes* gives us interesting descriptions of a number of these, among them Alma Tadema's, one of the most beautiful houses of modern times. The cheap house built to rent is of much the same order of offensiveness as its American prototype, and far less comfortable in its appointments. Much of the modern English building is as inferior in its own way as is our own.

"The old brick mansions of the early Georgian era, although unpretentious in appearance, were at least as strong as good burnt clay and duly mixed honest mortar could make them; the walls were of substantial thickness; the timber was well seasoned and of ample dimensions; the foundations were well laid; the roof was of convenient pitch and covered with the best of slates; the doors were securely hung, and a true lintel, or a real arch, with properly tapering ends, was turned over every window. The woodwork was excellent in workmanship and frequently spirited in detail; while the wrought iron introduced to decorate their façades in the shape of gates and area railings, was designed in thorough accordance with the nature and properties of the material employed."—*Hints on Household Taste*, by Sir Charles Eastlake, p. 8.

This is the English house as Sir Charles Eastlake describes it, and having described the rise and progress of stucco, he goes on with his arraignment of the house of to-day :

"Plaster brackets support plaster pediments; stucco bas-reliefs are raised upon a stucco ground; the whole front is a sham from the basement storey to the attic. But murder will out, and by degrees this prodigious imposition begins to reveal itself. A mouldy green dampness exudes from the hastily constructed walls. The ill-fated stucco blisters up and peels off in all directions. Ugly fissures appear on the house-front caused by some settlement arising from bad foundations. The wretched parodies on carved work become chipped away by accident or crumble to fragments under the influence of the weather. It had only a meretricious excellence when fresh from the painter's hands. A few years have made it a dingy abode; a few more years will make it a ghastly ruin."

As to the interior, he tells us :

"Floor boards come up unexpectedly after separating from the skirting; doors shrink so that they cannot be securely fastened; window sashes warp and become immovable; marble chimney-pieces are gradually detached from the wall behind them. The external disorder only foreshadows the internal discomfort. . . . It is unpleasant to live within ugly walls; it is still more unpleasant to live within unstable walls; but to be obliged to live within a tenement which is both unstable and ugly is disagreeable in tenfold degree."

Such houses as these one sees by the hundred in the outskirts of London—a province in itself—and in the manufacturing towns. It should be added, however, that the number of new ones built on the same plan has been materially lessened since this protest was made, no man having spoken with more distinct effect than has its author. And there is so much that is noble and beautiful that one can well ignore the mean and

poor. As a whole, domestic architecture in Europe pleases the eye,—in many cases delights it, and till you have wandered in old cathedral towns of England, or in the quaint cities of the Continent, you will not know what fascination may lie in brick and stone and iron. European travel is doing much for all forms of art among us, and we assimilate so quickly that in a time not distant we shall have American architecture of which we need not be ashamed.

In short, with all our glaring defects in taste, and something worse than this—the actual dishonesty of much of our building in general flimsiness, use of poor material, and hasty finish, there is no other country where the population as a whole is so well housed. The American mechanic, in Philadelphia, for example, gets more comfort in return for his money than the English worker ever knows, and the standard with us is a steadily rising one.

The possibility of something beside the rectangular method is dawning upon American city architects, and we have in the city of Brooklyn an entire block owned by Mr. Alfred White, who built the first model tenements for that city. This block is built about an open court, with fountains, trees, and shrubs. Every modern improvement has been used, always in simplest forms, but of perfect material. No millionaire's home has more thorough finish, and building a block at once has been found to so reduce the expense for each house that the landlord is enabled to rent them for less than the same grade of individual houses bring and yet receive an equal percentage on the original cost. The union of numbers who guarantee to take and keep in order a block of this description lessens immensely the cost for each family, and gives an order of comfort and finish

impossible in the ordinary workman's house. Built to live in and built to sell are phrases that have long carried to us all the sense of comfort on the one hand ; of cheapness and consequent unending irritation and discomfort on the other.

The great apartment houses of our cities are demonstrating how much comfort can be increased by the lessening of labor, a common heating apparatus and plumbing system doing away at once with one of the heaviest labors of the private house,—the lifelong wrestle with coal and ashes. When the time comes that shall bring a better system of planning and solid construction, each family will be as free from noise and the other infelicities of "flat" life as is the dweller in the best private house ; but until women study this matter and bring trained intelligence and a reconstructed sense of what a house should mean to bear upon this most vital of needs, we shall still have to submit to a myriad of unnecessary evils.

To build properly, we must know not only the underlying essentials already mentioned, but also what order of architecture best suits your own place in life and the spot on which the house must stand. Often one sees a house stately and fine in plan and demanding as its setting the sweep of green turf and groups of trees, but set down in a space so narrow and with surroundings so absolutely inappropriate that the whole thing is dwarfed and belittled.

The house that is charming in a southern climate becomes a terror in a northern one. A hill requires a different structure from that in a valley. A prairie covered with make-believe wooden castles, Swiss chalets, and Italian villas makes us the laughing-stock of any intelligent foreigner.

Judicious landscape-gardening goes hand in hand with architecture. To plant at the north for protection against wind and storm, to know what type of shrub will best bring out some special point in niche or embrasure and in turn gain advantage for each characteristic of its own, to see every possibility of the ground from which the house should grow,—these are parts of the foundation of knowledge required.

There is a house on one of the most beautiful roads in the United States,—the Jerusalem road between Nantasket and Cohasset, Mass., the sea at one side, the piling ledges and scattered rocks with their growth of vine and shrub seeming to defy the builder on the other. Out of one of these ledges a house has grown, for where ledge ends and house begins one can hardly say. The architect studied every inch of it. Nature had made a scheme of color and decoration as well as a foundation no man could better. Of this same stone he made the house, laying carefully aside and protecting every trailing blackberry vine, every clump of sweet fern. Wide-spreading, sturdy, and strong it grew, balconies here and there, a sheltered sunny piazza, a living-room in more senses than one, and the overhanging roof as perfectly fitted a shield and protection as the brooding wings of a mother hen. Even the front steps were not so much steps as a judicious selection of rises in the ledge,—and at every jutting point, trailed and clasped and lived its own life unharmed, all the delicate wild growth that had been and that remained an integral and inseparable part of the beauty all may see.

Now the prairie has no such opportunity, it is true, but it has its own possibilities, and judicious planting of quick-growing trees will do for it all that is neces-

sary, and take at once from village or town that bare wooden ugliness that depresses the dweller therein no less surely than it does the stranger passing through it.

If a group of friends who proposed to build on such ground pooled their resources and started in with a definite conception of what plan of planting and building would produce the best results, the very fact of a united purpose would give a different expression to the whole. As it is, a town is a jumble of incoherencies. The wealthier people plant themselves in the best places,—and when it is discovered that parks and boulevards, and free access to a lake or river, for instance, are required as public needs, every foot of ground is already appropriated, and the members of the city council gaze upon each other with distracted eyes and wonder why nobody thought about it in the beginning.

With such study as will be done, this sort of obtuseness will speedily end. In learning what beauty of form and design the past has held, we shall at once be guarded from any of the vulgarity and limitations which distinguish much of our American architecture. The study of plans of beautiful houses, the working out of our own thought, will be not only enlargement of perception but also the happiness that comes from any genuine step forward. The work involved is one of the most delightful features of a course like this, and will make of each student a missionary bearing the standard of beauty and preaching its meaning and its use in that larger life the higher education is to bring to all and for all.

Of the various styles, you will notice that I have said no more than a word here and there. In these limits, it is impossible to do more. Any good history

of architecture will give you divisions and illustrative plates, and in a full course these would all be studied with reference to their applicability to our own climate and mode of living. The Greek, the Saracenic and Moorish, the Romanesque, the Gothic,—each has its meaning, ethically as well as artistically and historically—but details must bide their time.

One thing must be held in mind by the student of architecture from the household point of view. All applied art is modified by use; and architecture is an applied art in its very essence. The use of the structure determines its character from the beginning, limits its extent, and modifies its beauty. We feel this somewhat, even in America, and a school-house can be distinguished from a penitentiary by a person of any education. The private house, in its essential purposes, carries its architectural limitations, and only vulgar ignorance will build beyond them.

First, the private house is the enclosure and expression of the private family. It must express personality,—a small compound personality a little bigger than that of one individual, but not often beyond that of a dozen. Personality is always limited by good taste.

Second, the private house is limited by private means, a serious consideration at present.

Third, it is limited by its uses. What is a private home for? Fundamentally, to sleep in, to hide in—a place of shelter, safety, peace, and rest. This prevents too great a giddiness of expression; the home should express quiet and retirement. Then it is for the further purposes of eating in, cooking in, and cleaning in.

Now a sleeping-house, a dormitory, is one thing; an eating-house, a refectory, is another. So a washing-

house, a lavatory, is one thing, and a cooking-house, a cookatory, is quite another. Add to these the requirements of such contradictory functions as the nursing of the sick, the care of the very young and of the very aged, and the entertainment of guests, and you see that the limitations of the private house present no small problem to the architect, and prevent any very high beauty by their multiplicity and discord. It is a compound, at best, varying in the occasional predominance of one or another function ; and it is largely because of this incessant production of compromises that domestic architecture is at so low an ebb to-day.

All great art must be public ; that is it must present large ideals, generalities, types. The church, the palace, the theatre, the bath,—any building with a specific purpose,—represents one leading thought, and its architecture may be noble. The castle was nobler than the house not because it was larger, but because it represented one main idea, that of defence, and all other needs were subservient to that.

And this limitation to domestic architecture is that the infinite repetition of the same kind of building, all small and indeterminate of aspect ; and all, by their functional necessities, in regular connection with a common means of communication, requires that our cities shall be frowsy checker-boards, stubble-fields of chimneys, wastes of monotony that is not regular and of eccentricity without distinction. Our cities are gridironed with rectangular streets to feed the industries of the private house ; and the higher needs of humanity, space, air, light, view, grandeur, beauty, and peace—are all lost sight of in the patient struggle of architect and engineer to meet the needs of this innumerable multitude of cook-, eat-, sleep-, nurse-,

wash-, and entertain-atories ; such an one, for instance as Tuxedo.

One of the crying abuses of this system,—I use the word with painful literalness,—is the lack of proper accommodation for children in the private house. This may have a strange sound to you, but it is true. Only the rich can afford nurseries. Most children live "don't"-bounded lives, their needs unnoticed in the conflicting interests of the homes. They fall down stairs. Why surround our babies with zigzag precipices ? They fall out of windows and into tubs. They are forever pinching their little fingers in doors, bumping against tables, tumbling over chairs, coming to all manner of grief in the daily stress of manifold household industries, and they are lucky if they live to the age when a separate room can be afforded them.

Now, while the absolute necessity for a separate home for each family remains undisputed,—and no house was ever big enough for two !—there is no reason why the buildings which shelter those families should not be so juxtaposed and related as to make possible a true and noble architecture, and give far better accommodation than we have at present for every household need. Juxtaposed our houses are now, in the choked city streets,—driven together like the inimical Butcher and Beaver in Lewis Carrol's classic :

> " Until wholly from nervousness not from good will,
> They marched along shoulder to shoulder."

Our houses hunch and hate each other in jumbled rows, stand in chain-gangs of blocks and flats—turn blind resentful eyes to blank walls of smothering nearness, crowd and jam each other's lives out in a hollow square that fronts the world with dull defiance of pre-

tended separateness, and lose all privacy in common exposure of huddled and defenceless back-yards. We are not private or separate in any decent sense at present. But we shall be when the architectural genius of the age gives us great clustering palaces; when the private houses ray out in wings and ells of lawn-ringed separateness, all its industries subservient and reduced to order, and the whole great building expressing the thought of human living at its best.

To this end is our house-building now trending by devious ways, but toward a result of greatly needed good.

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CHAPTER IV.

ORGANISM OF THE HOUSE.

Structural Necessities—Vital Processes of the House—Air, Light, Heat, Water, Ventilation—Troglodytes, Ancient and Modern—Proportion of Air to Occupancy—Air and Women—Air and Boys—"Night Air."—Ventilation, Public and Private—Our Schools—Light; Its Influence on the Body and Spirit—Sun-baths—The Artificial Light Habit—Heat, Natural and Artificial—Methods of Application—Plumbing—Water, Clean and Unclean—Drainage, Private and Public; its Evolution, History, Present Methods, and Tendencies.

ACCUSTOMED as we are to considering houses from the inside, as conveniences—or inconveniences—for living; and from the outside as things to be looked at, or, more often, to be looked away from,—this thought of the house as an organism with structural necessities and vital processes is perhaps an unusual one to present. But a house is a created thing. It is born of the brain and hand of man; it lives by his care, and dies when its time is come, the quicker if man's care is withdrawn from it. This we know practically in the fact that a house keeps in repair better when occupied, that a rentless tenant is better than none, and that large buildings when vacated are supplied with "care-takers" to partially inhabit them.

As a matter of more careful philosophy, the house is a combination of matter, in artificial forms, for artificial uses, and needs artificial care to maintain it. It sustains changes, mechanical and chemical, like all organisms; but, unlike what we commonly call a "*living* organism," it has no vital processes of its own to offset those of waste and decay. Man is the soul of the house, and man's occupancy must supply the vitality to keep the house alive.

To prevent the too rapid ravages of decomposition by air and water, the house must be aired and sunned and internally heated, and intelligent care used to repair accidental injuries, as well as those caused by essential decay. The internal organism of the house involves all these considerations: It must be so windowed as to admit light to all parts, lest harm be done unseen; there must be means of access to and examination of all parts; and there should be means of heating all parts with some approach to equability.

A well-cared-for house may be lived in longer and more comfortably than may a neglected one. Yet this is but a minor consideration, compared with the needs of the living beings inside—the detachments of humanity using that shelter in common.

First in importance in this regard is the supplying of the house with air,—the great question of ventilation. To understand it, we must go back for some distance,—to the cave and hollow tree. The first use of a separate bit of the universe, pre-empted by some ranging bear, was for shelter; shelter from the cold, the wet, and the enemy. A small place was best for all these purposes. He could warm and dry it by his own interior, portable furnace, and he could defend a small doorway better than a large one. The hibernat-

ing creature needed very little air, and the ordinary sleeping creature not much more. They had air enough out-doors all day. They went in there to rest, lungs and all. So we find very little demand for ventilation from animal, savage, peasant, or low type of civilian. The primitive instinct is still strong, and intelligence has not appeared to combat it.

The great reason for ventilation in the modern house is that we live in it all the time. We no longer live out-of-doors and merely go in the house to sleep,—though our primitive-natured children still like to do so. We live and work mainly under shelter, and therefore need that shelter ventilated. The need for air is as definite as the need of food; and the result of foul air is as certain as that of foul food. This we know in a certain dim way, as we know the distance of the fixed stars; but we do not act upon it. It would be hard to find a better instance of our utterly disconnected march of progress than the calm way in which we send ahead little skirmish lines of education,—perceiving this, believing that, admitting the other; and all the while *living* in the dark ages. We have progressed from the filth and brutality of the savage in many ways, but in some ways not at all. Our eating habits, for instance, are tolerably refined. We like our food to be of good quality, pure and clean in material and preparation, regularly and amply provided, and, served to us individually on clean plates.

But our breathing habits! We are content to breathe air that the savage would scorn to stay in by day, air insufficient in quantity, irregular in supply, and mixed with all manner of artificial impurities,—mingled moreover in charming catholicity—all of us serenely partaking of one-another's breath with a cour-

teous disregard of its manifold circulation through our defiled and outraged lungs.

The troglodyte of the dim beginning was not more foul in habit than is the troglodyte of our dim present; and his developement is kept low by the same limitation.

The more a house is lived in, and the more the people who live in it, the more it is a place of industry and enjoyment as well as of shelter and rest,—the more it needs air; and as a house is not open to the winds of heaven, its ventilation must be artificially provided.

Right here is where the position of woman has had a marked effect on the health of the race. Speaking broadly, she has about half as much fresh air as is enjoyed by her outgoing companion, with the same degree of consequence to herself and children as if she had half as much food as she required. Not only is her air insufficient, it is bad air necessarily,—and commensurately injurious.

Nowadays, when tomboydom is recognized, and to gad abroad is no longer a reproach, this curse is lifted in large measure; but time was when it was said: "A woman should leave her home but three times—when she is christened, when she is married, and when she is buried." Also: "The woman, the cat, and the chimney should never leave home."

Perhaps that answerless problem of perplexed motherhood—"How to keep the boys at home," might find partial solution from this point of view. Give the boys air, good air and plenty of it. Sturdy little animals with racing blood and vigorous lungs, no wonder they "want to go out-doors!" And it is largely because of the years of association of out-of-

doors with its clean wealth of air and accompanying strength and pleasure, and in-doors with its enforced detention and foul suffocation to the poor little lungs, that makes the older boy so instinctively refuse to stay at home. We even sometimes compel our children to stay in the house *as a punishment,*—a colossal mistake for a home builder.

Our houses ought to be as pure and fresh in air as they try to be in food,—and they will when women learn household economics.

Side by side with even the highest evolution walks prejudice; the ghost of a past that will not down and that perpetually modifies action. It is this ghost that whispers, "Night air!" and grins a satisfied grin as windows go down, and the lungs which—from the very fact of slower breathing during sleep—require the purest possible supply of air, become half asphyxiated and take their revenge in colds, pneumonia, and all forms of throat disease. The stout German whom I have seen sitting peacefully drinking his beer in a garden white with hoar frost, goes home to hermetically sealed doors and windows, often with cotton in his ears, lest through an unguarded aperture some breath of air should find entrance. The Frenchman who dines outside the café on the boulevard until the snow comes, follows the same custom, and Southern Europe is of the same mind,—night air being held to be deadly in its nature. Yet, once more, one is compelled to ask, if we do not breathe night air at night, what do we breathe? And the answer is that we breathe something so foul that a chemical test applied would show it black and deadly as any Stygian mist. Benjamin Franklin, one of the most common-sense men America or any other country has ever

known, wrote more than a hundred years ago: "I shall not try to explain why catarrhs are caused by damp rather than wet clothes, because I doubt the fact, and suspect that the causes of respiratory affections are totally independent of dampness as well as of cold."

In this shrewd surmise of one of the wisest and shrewdest men that has ever lived, lies a truth that the experimental physician is demonstrating every day; yet, as a whole, it remains unheeded. About two million human beings go annually to the consumptive's grave,—a disease cured by an out-of-door life in pure air; the percentage of pneumonia and lung diseases in general increases rather than lessens, and throat and lung specialists wax in numbers and grow fat in purse. It is worth while, then, to note here certain actual facts.

Consumptives who have been coughing their lives away in stove,—or steam-heated rooms, recover in a lumber camp. I have seen in Minnesota, patients so ill that they were carried on litters, put into a bed of pine boughs in a lumber camp, where air came in at every chink, and where the only defence against it was rolling in blankets, and come out at the end of three months cured. In the pine woods of Maine the same thing has been done for years by a famous specialist in consumption, who has a camp in the deep woods, and whose cures are so certain that a relapse is rarely known. We all know that in war time delicate lungs, which had been watched with life-long precaution, went into camp, and, in spite of camp hardships, came out cured, relapsing only on return to close barrack quarters.

Pine balsam is an antidote and the deep woods a

protection, but in a variable climate such results would not be possible, says the objector. How then about the hunter, the herder, the teamster, exposed to every possible variation, and emerging more sturdy than before? It is the operative in a steam-heated factory, or the dweller in the hot, weather-proof house of the city, who requires this constantly increasing army of throat and lung specialists, while the conductor or pilot, exposed to the fiercest kind of draught, comes home none the worse for it.

The heat habit is as insidious as the drink habit, and its results are hardly less fatal. In the sort of temperature the American loves, the skin dries and loses any power to fulfil its natural office. The victims of grip, so physicians testify, were, in the great proportion of cases, people who were in terror of a draught, and lived in super-heated rooms. Croup for the babies, bronchitis, and all the train of throat and lung diseases, are the natural consequence of breathing hot vitiated air, and the national catarrh, partly responsible for the "American voice," comes from the same cause.

The doctors themselves preach one thing and practise another, and it is only when fixed disease compels change, that a new habit is formed which revolutionizes the old methods. Even in such case, it is most often only one member of the family who is converted, the remaining clinging to old ways till compelled to alteration by the same necessity. In short, the old delusion is more powerful than any proof of what it has wrought, and, as a million furnace fires send up their first smoke to heaven, and shivering households gather about the black hole that does duty for the fireside of old, the lung microbe wriggles joyfully into his appointed

place, and the host that ride on the blast of sewer gas, and inhabit the cellar and the drain, make ready for the winter campaign. If the victim will not make war upon them, how shall they who dwell beyond their jurisdiction, and know them only by name?

The three essentials of all ventilation can be summed up in a few words.

1. To provide an abundance of pure air in all parts of the house.

2. To avoid draughts, either hot or cold.

3. To provide means of escape for all foul air and odors.

At all points in the consideration of these questions the student is referred to the small manual on *Home Sanitation* prepared by the Sanitary Science section of the Collegiate Alumnæ, and so simple and clear that failure to comprehend is impossible.

A wise man in Boston has invented an air tester, which gives the percentage of foul air, otherwise carbonic acid gas, but it is not yet perfected and its cost is too great for ordinary uses. In the meantime, our ventilation, public and private, is a farce which also includes a tragedy. In the magnificent buildings of the new Inns of Court in London, judges and jury at their first occupancy of the court-rooms grew faint for want of air and an adjournment had to be taken, because the construction of the chambers was such that fresh air was forbidden entrance; nor could these chambers be used until alterations had been made to admit the air. New York's famous five-million-dollar court-house is similarly faulty in its construction, with the result that several judges have died as a result of diseases caused by its lack of rational ventilation, and men who have mounted the bench with strong and

robust constitutions have been made invalids for a large part of the year. A protracted trial in one of these court-rooms is generally followed by an epidemic of sickness among judges, lawyers, jurymen, clerks, and reporters, obliged by their duties to breathe such pollution from morning to night day after day for weeks.

Often when a ventilating system is introduced into one of these great public buildings it fails to work, or the occupants plug up the apertures for fear of a draught. The draught fiend is found in every audience, which stifles and chokes because the fiend has an idea that air on the back of the neck is as fatal as air on the front of the neck is harmless, and calls for closed windows, reckless of other people's feelings and opinions, to say nothing of their health.

The study of systems of ventilation is a vital part of any course in Household Economics, but in our limited space I can only speak of one or two practical forms, referring students to expert treatises on the subject for further and detailed knowledge.

We know that fire in every form, from furnace to gas jet or lamp, feeds upon oxygen, and that where these forms of fire are busy satisfying themselves with our store of food, we must ourselves either starve or furnish a double supply. There is but one method warranted to work infallibly, and that is a warm-air flue, the upward heated current of which draws off the foul gases from the room. This, supplemented by an opening on the opposite side of the room for the admission of pure air, will accomplish the desired end. An open fireplace also accomplishes this so long as fire is burning and a draught created. The simplest plan is to have ample openings from eight to twelve inches square at the top and bottom of each room, opening into the

chimney flue. In this case, even if stoves are used, the flue can be kept heated by the extension of the stovepipe some distance up the chimney, and the ascending current of hot air will draw the foul air from the room into the flue. This, as before said, must be completed by a fresh-air opening into the room on the other side. If no other can be had, the top of the window may be lowered a trifle, or a board the precise width of the sash and four or five inches high may be used. Raise the lower sash, put this board under it, and an upward current of air will be created which will do much to purify the room. In the ordinary house, the direct action of heat on the air itself is the ventilating power. In hospitals, theatres, and other large buildings, fresh air must be forced in by a steam-engine or electric motor and foul air drawn out in the same way. But remember that the popular notion most people hold, that air will rise simply because it is hot, has been proved to be as untrue as the "night-air" fallacy. Hot air rises because it is lighter than the cold air around it, just as a cork rises and floats in the water. As air heats it expands and the warm air tends to displace the cold-air, which, being heavier, glides under it and drives it upwards. It is to this end that we attach a cold-air box to the furnace, so that cold air outside the house can pass through it and drive that which is heated upward through the house. This warmed air accumulates in the top of the room, but does not change as quickly as that near the floor; hence the need of the devices mentioned for changing it. In some flues a gas jet is kept burning to warm them to the necessary point, or the waste heat of another chimney is utilized. A mere ventilating shaft will not ventilate. It requires heat to produce a draft, and

where a strong one is required for a very hot fire, as in furnaces for manufacturing purposes, very tall chimneys are essential.

The best mechanical ventilator is the globe ventilator, simple and ingenious and designed to overcome the effects of winds which may blow in such a way as to drive back the rising column of heated air.

But in the ordinary dwelling-house there will usually have to be much reliance on windows as aids, and in much occupied rooms when their opening becomes necessary a screen can always be used to shut off direct draught if there is fear of it.

We must remember, too, in connection with ventilation, that any causes producing foul air must not be allowed to continue for a moment. A vase of neglected, decaying flowers will poison the air of a whole room. A decaying head of cabbage in cellar or area way, a basket of refuse vegetables, a collection of old scrubbing cloths, a foul garbage pail or box,—all these mean disease.

Air and sunlight must search every corner of the house, and as nearly spotless cleanliness as may be, be the law. Without these first essentials of all life, constant slow murder will continue to go on, not only in our nurseries, but also in our public schools, whose ventilation, as a rule, is not much better than that of the "Black Hole" of Calcutta. In factories and workshops, we are equally guilty,—and white-faced, nerveless children grow into white-faced, nerveless men and women, the vicious circle repeating itself unchangingly.

Heating and ventilation are so conjoined, especially in northern climates, that the treatment of the one naturally includes the other; but we can merely mention a

few facts as to the best methods of heating. As a rule, we overheat our houses to a frightful degree, and we need first and most of all to guard against this tendency. At present, even with their varied "improvements," the types of hot-air furnaces in use are all open to objections. A furnace is not the mystery the young housekeeper often considers it. It is only a large stove, standing in an enclosed air chamber. This enclosing is best if of brick, but can be galvanized iron. A cold-air box connects this chamber with the outside air, and the air from this ought to pass at least once around the furnace before entering the hot-air pipes.

"Burnt air," against which the intelligent physician warns patients, is that sent out by a small volume of highly heated air such as the cheap small furnaces furnish. The furnace and all its equipments of cold-air box etc., should be large enough to supply the rooms with a large volume of air warmed to a temperature not exceeding 120° F.; such a volume will keep the house at from 65° to 70° easily. Hot water and steam-coil furnaces give a better heat than the old-fashioned hot-air ones; but even these, with water-pan always full, cold-air box opening on out-of doors, and a properly tended fire, give results not to be dreaded. Seventy degrees should be the maximum temperature of a room, and if the entire house could be evenly kept at 65°, people would be far healthier than they are at higher degrees. The chief advantage of a temperature at 70° is that it can contain more moisture than a lower one. There is no reason why the old, who require more heat than the young, should not obtain it by wearing more clothing instead of roasting the remainder of the household. Houses kept at from 80° to 90° mean simply slow murder or suicide for all within

their walls, and as in most cases children are quite at the mercy of their elders' tastes and habits, our national disease of catarrh is easily explained. From 85° within to perhaps 30° below without, as in Minnesota or Wisconsin, would give catarrh to a hippopotamus or an ichthyosaurus.

If hot-air registers are set in the house, remember that they must always be placed in the partitions of the rooms if possible. If they are in the floor, dust is constantly swept into them; the carpets, if you have carpets, must all be cut; people will stand over them and take the most debilitating kind of warm bath. A decided advantage also of partition registers is that the heat is by them diffused more evenly through the room, and there is less waste through the ventilating apertures. Registers can never be beautiful, but wall registers are less harmful than floor registers.

Gas is at no time a perfect heating medium, since active currents of air put it out. Gas or oil should only be employed for very temporary heating, as in a bath-room, and an airing of the room looked to when the fire is put out. Natural gas, so extensively used for this purpose where it is found, has all the advantages of ease of handling, cleanliness, and efficiency; but those who use it literally dry up, there being no way of using water-pan or otherwise lessening the drying quality of this sort of heat. Electricity is the agent to which we are to look as the coming heating power,—and if Mr. Tesla's experiments succeed, we shall in good time be able to use it as freely as water. In the meantime, it is already making its way in competition with gas, and has already been applied to ranges and cooking utensils, the Electric Kitchen at the Chicago Fair opening up a future in which coal

and ashes and smutty pots and pans make their exit all together.

In the larger study of these questions, the best forms of fuel, their relative value and cost, and the modes of employing them, all have place ; but all I can do now is to refer for details to Chapter V. of *The Easiest Way in Housekeeping and Cooking*.

The matter of lighting really precedes heating ; in fact, belongs to each of the heads we treat here, since at every stage we must have light as an active help in all cleaning processes, and so arrange that all plumbing may receive it.

Natural light, otherwise sunshine, is tonic and disinfectant in one, and the sun-bath ought to be a possibility for every house. The best hospitals have now a solarium on the roof, and not only are delicate patients strengthened, but it has been found both quieting and healing in all forms of nervous diseases. Delicate children are made over by this treatment, and more and more wise physicians are disposed to banish artificial heat as much as possible and to use sunshine as a formal prescription.

The artificial-light habit grows with civilization, and a fashionable luncheon shuts out sunlight, which is a keen detective and less friendly to rouge and powder than are shaded candles. The softly-diffused electric light promised us by Tesla will be almost as pervading as sunlight, but the electric light as we have it at present is hard in quality and trying to the eyes as well as to dress and complexion. Its best use is as policeman, since its adoption in our great cities has lessened crime to a considerable extent and made some forms of it impossible. The cost of the electric light makes it at present impracticable for average houses,

which must still use gas or oil lamps. The uncertain flickering flame of the first is bad for the eyes, and either argand burner or porcelain shade should be used as protection. The steady light of a student lamp is best for all who must use the eyes hours at a time; next best are the Rochester and other like forms, any of them preferable in quality of light to gas, although the heat they throw out is at times very disagreeable.

Lamps require constant care in proper filling and trimming of the wicks, but they repay the trouble in the improved steadiness of the light. Only the best oil should be used. The crust on the burned wicks should be carefully rubbed off instead of cut, or if cutting is necessary, the corners of straight wicks should be a little rounded up to the centre. At intervals in the year, the parts of the burner which carry the wick should be boiled in strong soda water, the only thing that destroys the rank smell of the old oil. A lesson in lamp filling and cleaning is part of any course in domestic training, and in our cities experts now go from house to house, as only experts can deal with the finer order of lamps now in use.

We come now to the next most vital portion of the organism of the house, its actual circulatory and excretory system,—the water service, on which something more than mere individual health depends. The small boy who roars as his face is washed simply voices an objection, no less tangible because it is a silent one, of the great mass of the people. "The great unwashed" as a descriptive term belongs, unhappily, to many other classes than the lower laboring class; in what is known as good society we have often very evident demonstration that the best uses of water are practically unknown. I have been in New England farm-

houses where the only facilities for washing for the entire family were limited to the kitchen sink, some soft soap, and a roller towel,—a square of looking-glass above and a family comb completing the toilet conveniences. Baths in any perfect form are a product of high civilization, and with a system of baths must be also a system for the removal of waste water. In the isolated farm-house, built on the cheapest plan, both water supply and drainage fare as best they can, and the intelligent farmer's wife who reads what science has to say as to the causes of typhoid fever and diphtheria, looks with terror at her own drains and wonders what can be done about it. For most women, however, there is not only ignorance, but also a feeling that plumbing is something about which it is quite unreasonable to expect them to be informed. Even when the theory of sanitation is understood, the details are ignored. Take as an illustration the case quoted by Mrs. Plunkett, the well known authority who edits the Sanitary Department for the *Independent* of New York, and whose book, *Women, Plumbers, and Doctors*, is one of the best sanitary hand-books in existence. It is the tale of a devoted wife and mother whose husband was recovering from an onset of consumption, and who had been sickening for just the right sort of house into which to move. She had found it—a corner house, every room light, high, and airy, with open fireplace and transom for each, and no "set bowls." She had studied the complicated piping of the house, felt certain that every trap was ventilated, and, as she gave her triumphant account, ended with: "And the gentleman said the cellar was all right,—I mean as to the drain-pipes and the furnace and all that; and so I suppose it is. She had seen that there were

stationary tubs in the basement laundry. Beyond that point she did not go, and why? Because she had grown up in the belief that the care of the cellar belonged naturally to the men of the household. She would as soon have thought of mastering the mechanism of the engine in her husband's factory, as of studying the proper construction of a foundation wall or cellar bottom or a cold-air box,—and as it happened each one of these items was in a dangerously defective condition.

Now any genuine study of plumbing means books, and not such books as can be read in an hour; but there are certain fixed principles which make the foundation of all sanitary science,—a science, by the way, purely modern, and which in our own country began where many other good things have begun,—in Massachusetts, with the work done in 1871 by the Massachusetts Board of Health, headed by the famous physician Dr. Geo. Derby. He and his associates made exhaustive examination of localities where epidemics of fever and diphtheria had raged, and where consumption had been most fatal, taking house by house, and finding in every case that bad drainage and bad water-supply were the chief causes of these diseases.

The story of these houses is one of terrible interest, and the summary of the work of this Board for twenty-five years is of the same order as that given by Dr. B. W. Richardson, the famous President of the British Medical Association, who wrote ten years and more ago:

"I am forced by experience to the conclusion that the whole future progress of the sanitary movement rests for permanent and executive support on the women of the country. The men of the house come and go; know little of the ins and outs of anything domestic; are guided by what they are told and are practically of no assistance whatever. The women are presuma-

bly conversant with every nook of the house from basement to roof, and on their knowledge, wisdom, and skill the physician rests his hopes. How important, then, how vital, that they should learn, as part of their earliest duties, the choicest sanitary code."

Furnaces being practically unknown in English houses and elaborate water-service belonging only to the better order of houses, English women have not the responsibility of the American woman, on whom double duty has always fallen.

Sanitary engineering is a new profession, and sanitary engineers are by no means sufficient in number to give us a competent inspector of plumbing for every town. The time is coming when he will be as much an essential in planning the house as is the architect, but even with such expert service, it is still women who must listen and learn.

For all houses, whether in the city or country, there are six problems which the householder must solve, and these are ranged in order by Col. George E. Waring, our highest authority as sanitary engineer, and author of *The Sanitary Drainage of Houses and Towns.*

1.—To secure his house against excessive damp in its walls, in its cellar, and, where practicable, in its surrounding atmosphere.

2.—To provide for the perfect and instant removal of fluid or semi-fluid organic wastes.

3.—To provide a sufficient supply of pure water for domestic uses.

4.—To guard against the evils arising from the decomposition of organic matter in or under the house.

5.—To remove all sources of offence and danger which may affect the atmosphere about the house.

6.—(And almost more important than all the rest)

To prevent the insidious entrance into the house, through communications with the sewer, cesspool, or vault, of poisonous gases resulting from the decomposition of the refuse of his own household, or of other households with which a common sewer or drain may bring him into communication.

We will take it for granted that the best possible location has been chosen. If imperative circumstances force a man to choose a site, the soil of which is damp, his wife can always insist on the cheap and efficient remedy of subsoil drainage, and there are books,—Colonel Waring's for instance, or the little manual already referred to, on *House Sanitation*, which give simple, plain instructions as to the minutest details, so that a man to this extent can even be his own sanitary engineer. With well-built foundation and drain-pipes crossing the cellar at intervals of not more than fifteen feet, the smallest land-drain tile being large enough, and so laid that there is a slight but continuous fall toward the outlet, drainage is at once secured. Earth is to be well rammed over them, and the whole cellar floor covered with concrete.

If this is essential for the country, it is no less so for the town with its filled-in spaces and made land, with its strata of dead cats and tomato cans, old boots, coal ashes, and garbage of all kinds. Against the witch's broth into which any standing water would turn this arrangement of material, only a coat of the best asphalt over the concrete will afford protection, even in degree. In European houses of the better order this coat of asphalt is now taken for granted as a necessary precaution.

This provided for, next comes the water supply. Rain water is, of course, the purest type, but as we cannot take it direct from the clouds, we have to ac-

cept what we get in our cisterns, to which rain water is conducted by pipes leading from the roof. The water must thus, unless a leader is used to run off the first rush, take up all the dust, soot, and other impurities, and requires filtering. The best cistern will include a filter of some sort, and this is accomplished in two ways. Either the cistern is divided into two parts, the water being received on one side and allowed to slowly filter through a wall of porous brick,—or a division is made into upper and lower compartments, the upper one containing the usual filter of iron, charcoal, sponge, and gravel or sand. Distilled water and rain water both have the property of taking up and dissolving lead wherever they find it, and it is for this reason that lead pipes, as leaders from or to cisterns, should under no circumstances be allowed, unless the lead is lined with some other material.

Well water comes next, the usual supply for drinking in the village home, and with this source there are a series of dangers to be avoided. If a well be shallow and fed by surface springs, all the impurities of the soil will be found in it. "A well drains," writes Dr. Parker, an English sanitary expert, "an extent of ground about it in the shape of an inverted cone which is in proportion to its own depth and the looseness of the soil. In very loose soils, a well of sixty or eighty feet will drain a large area, perhaps as much as two hundred feet in diameter, or even more.

The refuse from certain manufacturing and other industries is often poured into our rivers: gas-works, slaughter-houses, starch-works, and the like. In houses, it is astonishing how many instances occur of the water of cisterns and tanks getting contaminated by the leakege of pipes and other causes, such as the passage of

sewage through overflow pipes. As we now know that typhoid fever, dysentery, and cholera are caused by water rendered impure by emanations from the evacuations in these diseases, it is plain how necessary it is to be quick-sighted in regard to the possible impurity of water from incidental causes of this kind. All tanks and cisterns should be inspected regularly. Wells should be covered, a good coping put around the opening to prevent substances being washed down from the surface; the distances from cesspools and dung-heaps should be carefully noted; no sewer should be allowed to pass near a well, and no well near which a sewer passes should be used.

Suppose all such precautions have been disregarded. Suppose, as is usual that the well is dug near the kitchen door—probably between kitchen and barn,—the drain, if there is a drain, from the kitchen pouring out the dirty water of wash-day and all other days, which sinks through the ground and acts as feeder to the waiting well. Suppose the manure heap in the barnyard also sends down its supply, and the privies contribute theirs. The water may be—as repeated analyses have proved such water to be—unchanged in color or odor, yet none the less you drink a foul and horrible poison when you drink it; slow in action it is true, but making every fibre in you ready for diphtheria, and typhus, and consumption. I could give you a hundred illustrations, but time forbids. The sum of all sanitation for the village or the isolated home is in this: See that no open cesspool or drain poisons either air or water about the house. Sunk at a proper distance from it, and connected with it by a drain so tightly put together that none of the contents can escape, the cesspool, which may be an elaborate brick-lined cistern, or

merely an old hogshead tarred outside and in, and sunk in the ground, becomes one of the most important adjuncts of a good garden, and if used in wetting the compost heap, helps to fulfil one of the great agricultural duties of man, which Liebig tells us is "returning to the soil as fertilizers all the salts produced by the combustion of food in the human body."

This is the law for water as used from wells and cisterns or springs, and its general principles apply equally to the great reservoir from which a city or town draws its supply. Here the individual is often almost helpless, the city allowing sewers to be made by contractors who scamp the work at every point, and who have been known to let a drain run up-hill, rather than pay the cost of blasting out the intervening rock. Settling walls of hastily-built houses often dislocate pipes, the disconnection being very generally at the junction of the soil pipe and the drain; the filthy soakage infecting the soil nearest the wall of the house. All this evil means the necessity for rigid inspection, and the utter abolition of cheap building and cheap sewerage. Good plumbing is not and never can be cheap, and that fact must be taken for granted in building. A poor plumber, or a mean contractor who compels poor plumbing, will often finish a joint which needs absolute accuracy of fit and tightness with a solder so poor and so stinted in amount that the joining speedily parts, the overflow sinks into the soil, and sickness sooner or later follows.

The testing of joints for any possible defect in the pipes (and even a pin-hole means defect and the escape of poisoned air or water), is usually done with oil of peppermint. This is so penetrating in quality that, as it makes its way down through the pipes,—for it must

be poured in from above,—the faintest suspicion of hole or crack allows the familiar odor to escape and shows where solder is needed.

Perfect plumbing, even of the simplest order, requires such careful fitting of pipes, preparatory to soldering, that it is often necessary to bend, cut, measure, and clip them not less than a dozen times. In a bath-room with four fixtures, I have seen forty-seven joints above the floor, and even more were beneath to complete all connections with the waste pipes. A supply pipe, a waste pipe, a ventilating pipe, and a safe waste were part of each fixture, and to make one union on each required sixteen joints.

The rule now followed by the best sanitary engineers is, after full inspection of the work done, to draw a diagram of the completed piping, with full and plain directions as to which faucet to turn in case this or that pipe should burst, and which not to touch under any circumstances. This is placed back to back with the certificate in a double-glassed frame and hung in an instantly accessible place,—being the final touch in ideal sanitary plumbing, such as we shall all presently learn how to oversee. In this ideal plumbing, attained only here and there, every pipe should be in sight, and in the cellar where they have their exits and their entrances, each set should be painted a different color, to make attention to the needs of each easy and certain.

To understand these needs involves study, and sanitation has now in this country admirable monthly organs and a flood of special literature on all points involved. The reports of all the various State Boards of Health contain the latest and most scientific presentations of facts; the technical departments of colleges

and universities and special colleges for technical training—notably the Sheffield Scientific School,—have a comprehensive course of lectures on sanitation, such as will make part of the work to be done here in the future.

In the meantime, the careful reading of a very few authorities, indeed, of one alone—either Colonel Waring's or Mrs. Plunkett's book,—will give all the absolutely necessary knowledge on this point ; and this knowledge is one which belongs to the new school of preventive medical treatment, compels better public methods, and lengthens life for all. Public sanitation is part of the natural work of women ; it should and must be a vital part of their education. The problems it includes call for the widest knowledge and the most thorough training of every power of perception. "The House Beautiful," can never attain its full ideal until its great circulatory system is made perfect, and with the new knowledge we are all to own, it will be beautiful not alone for the rich, but for the poor as well, since what harms one harms all. Progress that deserves the name is not for the individual alone, but for humanity as a whole.

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CHAPTER V.

DECORATION.

Use and Value of Decoration in Nature and Art; its Laws and Principles—Relation to Pictorial Art—Evolution and History—Special Development in Races—Associate Conditions in Cause and Effect—Racial Influences—Periods — Our Present Level; the Highest, the Lowest, the Average—Masculine and Feminine Decoration—"How to Make Home Beautiful"—The Sense of Beauty in Women—"Traces of a Woman's Hand"—Survivals of Savagery—"Home-Made," "Ready-Made," "Born and Not Made"—The Power of the Home-Maker—Educational and Moral Value of Truth in Art—Artistic Sins and their Moral Counterparts—Homes, Schools, and Prisons—Practical Possibilities—"Often in a Wooden House a Golden Room You Find"—Spiritual Laws in Color—A Rest Room—National Importance of Elevation in Art.

TO understand the virtue and value of decoration in the house, large knowledge is required of decoration as a form of art and what relation it holds to humanity. In all the field of study covered by this course, we are hampered, as I explained in the introduction, by preconceived ideas and opinions, often many centuries old. In this particular subject there is less to contend with than in some others, ignorance being no obstacle at all, but an inviting vacuum. The principal difficulties to be met are the utilitarian and

the ascetic. Both speak, in our common phrase, "merely for decoration." The puritanic objection to gratifying "the lusts of the eye" we have largely outgrown; but the "mereness" still remains to us. We still look on decoration as an agreeable superfluity. While this misconception exists, we shall continue to adorn ourselves and our belongings with things superfluous truly, and by no means always agreeable; "trimmings" of all sorts, sewed on, pasted on, tacked on, nailed on, glued on,—appended and addended in all superficial ways; incomplete things of supposed beauty added to complete things of known ugliness, "merely for decoration."

In vain does the architect implore: "Decorate construction; do not construct decoration!" We continue to dismiss the whole subject as a light one, and while we have much that is "merely for decoration," we have in it no real decoration at all.

Do we know what it means "to decorate"? "First: To distinguish, grace, honor. 'My harte was fully sette, and my minde deliberately determined to have *decorated* this realme wyth wholesome laws, statutes, and ordinances.' —*Hall, Edw. IV., anno* 1523." In this definition, it is connected directly with *decorum*, meaning, of all things, fitness, propriety, relation. The very essence of the thought implied in decoration is relativity—that which belongs.

This idea is carried out in our further and special sense of *decoration* as the conferring of a mark of honor —"to *decorate* an artist with the cross of the Legion of Honor."

The secondary use of the word: "To deck with something becoming or ornamental; adorn, beautify, embellish; as to decorate the person; to decorate an edifice";

or "a grave and forcible argument *decorated* with most brilliant wit and fancy" (Macaulay's *Warren Hastings*), rests entirely on the primal idea of *that which belongs*.

With this in mind, follow the development of decoration in nature and in art. Think of that vast field of decoration in the flower and again of the varied "decorative appendages" and markings among animals, in which there is never any contradiction of structural and functional necessity, and in which the decoration itself serves a higher use,—higher in the sense of being more complex and not so immediate. And while all this painting of petals serves to allure and direct the winged match-maker; and the glories of peacock and pheasant serve to win the favor of their consorts, do not think of all this beauty as so much bait, but as the natural outcome of deep impulses which stir the organism to a demonstration beyond the immediately essential. Think of the beauty as the outcome of pleasure and of love,—and then we can understand the beginning of decorative art in humanity. The energy that made tool, weapon, and utensil spent itself further on their decoration; and the love of the savage for his trusty spear is the same decorative impulse as that which gems the hilt of a good sword and inlays its scabbard with gold.

The savage impulse answers to its own rude laws; but with the growth of man restraint became a law, in art as well as in politics. Principles were studied, laws deduced, and limitations recognized. Conventionalization was accepted as a principle of decoration, —and the laws of repetition, alternation, symmetry, and radiation became aids in intelligent design. What color and line mean to the mind of man; and how to

convey ideas and sentiments through their use, was now the study of the worker, and man's creations blossomed into beauty as naturally as those of God. Careful and extended study will be needed here, for this subject of "mere decoration" is one of the most vital in household economy.

The relation of decorative to pictorial art is barely understood in most minds, and it demands careful explanation. One distinction, and the essential one, is that decoration is part of something and a picture is a thing in itself. Whatever line and color is used in decoration is used with regard to the surface, substance, size, shape, and use of the object to be decorated,—while the picture uses line and color to convey idea or feeling in itself. No matter how simple is the form we draw, meaning it to speak for itself, it is a picture ; but that form painted on a tea-cup, stamped on calico, or carved on a cornice, becomes decoration, and must be judged as such. The figures of men and women on a Greek vase are used decoratively ; the immortal sculpture of the Parthenon frieze is "mere decoration," and every line conforms to its use. The pictures on our walls are used as decoration, and in that sense, they are irregularly placed rectangles of varying proportions and disconnected colors—about as poor a form of decoration as could be imagined. But the picture itself in its pictorial value is quite another matter to be hung "on the line," not skied.

Decorative art reduces line and color to their lowest terms, studies their elements and relations, and reproduces those elements in purer and subtler combinations than nature shows us. Much like the laws of musical composition are the underlying laws of decorative art. But all of this must be gone into with care and with

full illustration in our later work. We shall follow the evolution of this precious art from where the primitive potter first drew a line around his pot, followed it with another and learned that parallel lines gave some pleasure; with still another, and found three better than two; put dots between them and learned repetition; put lines between the dots and learned alternation,—and so up through all the laws of eye pleasure, which is certainly not less than ear pleasure, when we understand its laws.

In these lines and dots which we find, even in the tools of the Stone Age, lies the beginning of decorative art. To the savage, even to-day, it has a religious significance, as witness the tatooing of his body and the carving and painting of his spear-handle and other weapons. Take the face of the Maori, and every line of paint is a story, each curve a grade in his knighthood, and his whole body to the initiated is a family record,—a history of sustained honors.

At a very early stage, the savage refused to be content with rough tanned skin, or uncarved handle for the weapon or tool of sharp stone. The women worked out some simple recurrent design for both skins and mats, and the men sought to reproduce in their weapons of war objects and curves that would inspire terror in the foeman. Here came the first departure from mere nature watching; invention stepped in. The lion or boar singly was not terrible enough, and he proceeded to combine their ferocity in a mongrel horror which daunted even himself and meant nightmare to the small boy of that early age. Hard on these first instincts came the formulations of religions, and men ceased to imitate nature and look farther, seeking some mystic symbol for the unseen. Fixed

laws soon regulated every line, as in Egypt and in India where century after century each is repeated without the faintest variation. The Hindoo, the Chinese, the Moor,—the Oriental at all points,—followed this law and produced a fixed scheme of decoration. The Greeks who in the very beginning were the exception to surrounding barbarism, rose to perfection by quick degrees. Simple and refined in manner, rigid in habits, hardy in health, with stalwart beauty as a standard, "the flowing grace of their own unfettered limbs taught them the purity of true art lines." Egypt went on with her foldless draperies, indiscriminate finishing of details, and rigid system of coloring. But Phœnicia waked up, and from Tyre and Sidon sent out, as did Carthage, stuffs of glorious dyes, and golden cups and coins clean cut and embossed; while through every phase of advance Greece strode on through wars and revolutions, manifesting in all manner of ornamentation an art growing steadily stronger and more refined. Until their decline began with the luxury which Anacreon sang, their own habits remained simple, but they gave lavishly to their gods; and decorated broadly and delicately. Their rules were fixed, for a grammar of decoration naturally developed itself; but it was a fixedness within whose limits all things remained possible. The painters and the workers in stone or metal had each a theory,—nor can we of to-day add to their conception one line that does not mar. Their climate was that of the temperate zone, and they looked at nature with calmer eyes than belong to the Orientals, who love gorgeous coloring and lines of unending intricacy, —naturally enough, when nature of the most lavish order surrounds them. Color blazes from white intensity to blue no less intense, to greens and reds of the

richest, and the whole gamut so deep that all northern bloom seems pale in comparison. "Through the jungle and the closely-knitted bush tracks, up and down, over-laced, across—there is not an inch that is not covered with its tendril patterns." They reproduced them all in strange arabesques, each with its meaning and interpretation,—and to-day the forms are unchanged, and the student of art recognizes at a glance the source whence the scheme he studies had its inspiration.

Gradually as partial peace came to fighting, struggling humanity, and nations borrowed from each other the points in work that satisfied them best, it became plain that these decorative arts had three stages :

1.—Art, purely necessary and useful ;
2.—Art, decorative ;
3.—Fine art.

The first came, as we have seen, from the woman who sought for something to hold food, taking her model, it may be from the gourd, the shell, or the curved palm from which she had drunk water, and who fashioned the first rough clay vessel and dried it in the sun. The second stage, that of simple decoration in line and dot, we have already noted, and our museums hold specimens of pottery from various barbarous nations, the decoration of which is plainly copied from the lines of basket-work and of woven nets and mats.

Passing on from this stage, one by one the fine arts join hands,—and in architecture, painting, and sculpture we see the final transition from the Stone Age and the cave-dweller to Phidias and the Parthenon. Decoration, or rather the decorative arts, must at last borrow from all; and as you read the history of art,

which is in the nature of things the history of any civilization, you will see how beauty and sense of beauty grew, and how each nation drew from others the thing it most needed and most valued.

Decoration in the largest sense, then, means all the decorative arts, and no man has better defined its meaning than has William Morris.

"These are the arts," he writes, "by means of which men have at all times more or less striven to beautify the familiar matters of every-day life; a wide subject, a great industry; both a great part of the history of the world, and a most helpful instrument to the study of that history. A very great industry, indeed, comprising the trades of house-building, painting, joinery and carpentry, smith's work, pottery, glass-making, weaving, and many others: a body of art most important to the public in general, but still more so to us handicraftsmen, since there is scarce anything that they use and that we fashion, but it has always been thought to be unfinished till it has had some touch or other of decoration about it. True it is that in many or most cases we have got so used to this ornament that we look upon it as if it had grown of itself, and note it no more than the mosses on the dry sticks with which we light our fires. So much the worse! For there *is* the decoration, or some pretence of it, and it has, or ought to have, a use, a meaning. For, and this is at the root of the whole matter, everything made by man's hand has a form which must be either beautiful or ugly —beautiful if it is in accord with nature and helps her—ugly, if it is discordant with nature and thwarts her. It cannot be indifferent. We, for our part, are busy or sluggish, eager or unhappy, and our eyes are apt to get dulled to this eventfulness of form in those things which we are always looking at.

"Now it is one of the chief uses of decoration, the chief part of its alliance with nature, that it has to sharpen our dulled senses in this matter; for this end are those wonders of intricate patterns interwoven, those strange forms invented, that men have so long delighted in—forms and intricacies that do not necessarily imitate nature, but in which the hand of the craftsman is guided to work in the way that she does; till the web,

the cup, or the knife, look as natural, nay, as lovely as the green field, the river bank, or the mountain flint. To give people pleasure in the things they must perforce *use*,—that is one great office of decoration. To give people pleasure in the things they must perforce make,—that is the other use of it."

Out of all this comes a certain *unconscious* intelligence, just as the poorest child in Japan is born with a sense of beauty in form and line and reproduces it naturally, as his fingers are taught to convey the thought of his mind. As yet, we, as a people, know nothing of these gifts, and until every student of household economics, recognizes that such beauty is part of the house and must be learned with no less diligence than aught else that goes to the making of a home, it cannot be, as it must come to be, the simple, natural inheritance of the nation. Beauty in the home must come from that higher knowledge given by the higher education, and in such beauty will come the repose and calm that we sigh for and seek, and seek in vain, amid surroundings that would turn the Greek into a basilisk and draw a grin from even a South-Sea islander.

The list of genuinely good and fine authorities on this subject is a small one,—for I exclude at once all manuals made merely to sell. But Ruskin, in bits; William Morris, Eastlake, Lucy Crane, and Rhoda and Agnes Garrett will give both theory and practical knowledge, while there are other names hardly less honorable and in many ways useful and suggestive.

This study falls directly into the hands of women, and they must not think they can understand it by instinct. Women are credited with having a sense of beauty distinctively their own; "feminine taste" is spoken of as an intrinsic superiority on their part. Should you think well of the ear for music of a per-

former or composer who deliberately perpetrated most atrocious discords? Or of the mathematical ability of one who stoutly maintained that two and two made five? How can a sense of beauty be predicated of those who in their distinctive dress outrage beauty's primal laws, and in their household decoration are still savages? Indeed, the art sense is far better defined in many savage tribes than it is in our women. When a woman is willing to wear around her neck, as was done in the winter of 1894–95, a thing that looks like a dead kitten rolled out thin like pie-crust, she cannot claim the sense of beauty.

We speak with tender admiration of the "traces of a woman's hand." These are to the novelist, usually, a bird in a cage, a flower in a pot, and a lamp in petticoats,—all of which are questionable from an artistic point of view. The reason for our feeling is plain. Where women are they show, of course, signs of their differing cults. And to man, these signs, in speaking of woman, speak of home, of love, of motherhood, of all sweet and restful things; and so give pleasure through association of ideas, which he attributes to their beauty. The woman who can put together a feather-duster, a Japanese doll's head, and some satin ribbon, —using the head to thrust the feather duster through, so that its tuft of feathers waves above the broken skull and the ribbon conceals the decorpitation below, —such a woman has no sense of beauty. In that one object and its placing—the thing is hung up in the parlor—is a more potent proof of the need of higher education in women than could be written in volumes.

What beauty sense women have, they acquire as men do, by inheritance, education, and practice,—not otherwise. And it is hoped here to indicate how great is the

need of that education, that practice, and that transmission to future generations.

The decorative art we have now is of three kinds: the home-made, save the mark; the ready-made, and here there is no mark to save; and that which is born and not made, and which we rarely see. Nevertheless since England's renaissance—the pre-Raphaelite movement—there is a strong, new art impulse in the world and great growth. The importance of this knowledge to women, in view of their enormous powers as home-makers—which means man-makers,—is a thing which can hardly be overestimated. We underestimate continually, however, holding our duty done if the home be, on the one hand, clean and in order, and, on the other, fashionable in its appointments as far as our means allow; and so our children—that means *all* the people, remember!—grow up in a home atmosphere of low art, bad art, or no art at all! This is because we have so slight a conception of the educational and moral value of truth in art. No one who has studied the principles of art, and found their application to the conduct of life, can make this mistake.

Call to mind for a moment that a nation's rise and fall can be measured absolutely by its art; that a healthy and virtuous period shows itself in strong pure art, and a period of debasement and vice in a low and vicious art; remember the re-active influence of man's work upon his character; think how much more impressionable are the young to all their surroundings; and then see how serious a matter it is that our children should have to spend the most important years of their lives under the influence of such weak, false, frivolous, and wicked art as is found in the average home.

Pure, beautiful, and harmonious color ; true and noble form, surrounding the infant and the growing child, have a deep, steady, unconscious effect for good which helps make all life better and easier to him. Discordant, stupid decoration helps to lower the tone and weaken the power of the mind. If your wall-paper was covered with blue chickens with their heads cut off, interspersed with cannon-balls and fish-nets, it would have a confusing effect on the child's mind,—that, I think, is perceptible. So, in less degree, does all our silly, meaningless, discordant spattering of paint and ribbon and lace affect him,—not so violently as the blue chickens afore mentioned, but surely none the less. A gilded dustpan with a marsupial pouch of velvet full of photographs is calculated to check the development of the logical faculty, and to drive the boys away from home as fast as their legs can carry them ! There are no gilded dustpans at the club.

When the lines and colors in your house have no relation to each other, it is difficult to express the home feeling ; and when they quarrel violently and give one another the lie by their very co-existence, there is no wonder that the children disagree. A hairpin-holder made to look like a chair, a chair-back modelled after a fan, a fan hung up and turned into a pocket—and all of them tied up in satin ribbons,—this protean species of decoration does not conduce to morality or common-sense.

In sober sadness, now, this thing is true : There is absolute connection between man's inside nature and his outside creation, and *it works both ways.* Idle, frivolous, senseless humanity produces its kind in art ; and idle, frivolous, senseless art produces its like in humanity. A blank wall goes with a blank mind, and would

only be willingly endured by an idiot. We, having a high sense of beauty and the fitness of things, use blank walls in our prisons for combined purposes of punishment and reformation,—and, in our schools, where the young of our race spend attentive years, for their educational value!

The educational value of a blank wall is a thing we shall know more about by and by, when household economics are rightly understood. Something, of course, is being done in these lines, but it is mainly from the art side; we want to study it from the home side.

The home where order reigns, not only in the kitchen and the linen closet, but quite as much in the selection of books and pictures, the arrangement of rooms and the coloring thereof,—will have as marked an influence for good as shown in the advantages of our present stage of home order over that of the wigwam.

The child is a new soul. He has just come. All that he knows of life he has to learn after he gets here; and what he learns first stays longest. He is born—ninety-nine times in a hundred—into an ugly room in an ugly house on an ugly street in an ugly city. Notice the baby's love of flowers, ribbons, feathers; see how wild the child is in the garden or the daisy field; *he loves beauty and knows it when he sees it.* We introduce him into a world of ugliness, and then tell him by way of explanation that we did it! "God made the country and man made the town," we say solemnly to the child. Yes, this is very ugly,—we made it!

And man can make things so beautiful—such piled up dreams of beauty—that the child will laugh and cry aloud with ecstasy. The works of man are as beautiful as anything on earth. We set up the works of man in

opposition to the works of God, but in reality God works through man as surely as through gem and flower, if man will let him.

We could have city, street, house, and room as beautiful as sea-shells, so that the little new souls among us would not lose all their trailing clouds of glory and could grow into a noble manhood and womanhood without half the pain and struggle it costs them now.

There is one reason why this subject is more heartening to dwell upon than are many other phases of our study. It is within reach. We may not be able to dictate as to our habitat, to command location, foundation, or elevation, to choose or order our architecture, or even be perfectly sure of the plumbing; but when it comes to decoration, we can cover the situation. No matter how little money there is, it can be rightly spent instead of wrongly. And if we cannot achieve the virtues of commission, we can at least practise those of omission.

In a class of college men and women, coming often from beautiful and in the majority of cases always from comfortable, well-to-do homes, it is difficult to drop the personal point of view and recall the fact that out of our sixty millions of population, the large proportion are not only not very well-to-do, but with a lack of beauty in life and surroundings that is one of the most terrible sources of depression in our prairie villages, and the innumerable isolated farm-houses of the great West and Northwest, indeed the whole country. How are they to know that even when only rough plaster is possible, that plaster can have, in the mixing, its dash of yellow ochre, of green, or blue, or Indian red, and that if curtains or drapings of any order are used, even when only five cents a yard, they can harmonize or contrast

according to the laws of color? One shade of paint does not cost greatly more than another, and anything is better than the dirty white the cheap houses are compelled to wear.

If the child asks: "Why must plaster be that color, mamma?" it is the country custom to snap his head with a thimble, worn, the child supposes, chiefly for that purpose, and to tell him, "Because it *is*."

Now this question which is very likely to be heard from any intelligent child, is a legitimate one and to be answered intelligently. Necessarily the reply would be,

"Plaster is that color, my dear, because we do not yet know enough of beauty, and the use of beauty, to make it any other." The knowledge required is not a sacred mystery either. It does not require a trip to Europe. One lesson in color ought to inform a class as to which are "warm" and which "cold," and why. The effect of green on the eye versus red; the complementary colors, the use of harmony with its restfulness, and contrast with its stimulus,—all these little matters could be acquired by any intelligent adult.

It is marvellous how soon the color-sense may be developed, even in the aged. I once knew of an old lady of the rigidest New England type who had never cared but for two pictures in her life, and who preferred the parlor paper to be white with a gold thread in straight lines—white paint, of course; and thin white china,—all combining to produce the effect of a nice snow-storm with rain and sharp frost afterward and just a touch of four-o'clock sunshine across it. This good lady was obliged to live in the household of an artist for two years,—he being one of those intense colorists whose pictures are like stained glass in full sunlight. And, in

spite of her years and prejudices, the atmosphere of Venetian red, delf blue, deep yellow, dull black, and warm terra-cotta so worked upon her mind that she never after could be reconciled to the Arctic graveyard color-scheme of her youth.

Here there opens up to us a vista into which we may look, but only to realize how little teaching has done for us, how much we may do for ourselves. Optics and the laws of light it is true are taught the student, but for the most part merely by rote. Beyond the letter lies the world of the spirit, but this it would seem the business of what we call education to ignore. A scientist like Tyndall takes us straight to the heart of that magic realm where light, and color, and sound, play at hide-and-seek and the three are often one. In the deep Eastern philosophies, the spiritual laws and effects of colors are recited, their insight being confirmed by the scientist of to-day. Swedenborg, the mystic, gives a series of correspondences that are no less in line with modern discovery. The "blue-glass craze" passed, being an over-statement, but it left behind a series of valuable deductions that have been ever since in use, not only by physicians, but by fruit and flower growers also.

This larger phase of the thought of color and its meanings may wait the time of the individual student. But the simpler ones may not wait. Every child should know the meaning of a "rest room," and every house should own it if no more than the prophet's "little chamber on the wall"; a room to which all in the home may in turn have access. In such room experiment has shown that the colors most quieting and soothing are, warm leaf-browns for floor in rug or carpet, brown of palest leaf-brown for cushions and

drapings, and for high lights, clear yellow sash curtains, lamp shades, or stray bits of color in vase or jug. I have seen a tired, over-wrought woman pause at the door of such a room and draw a long breath.

"It is the restiest place I ever saw! What is it?" cried one who listened wide-eyed as she heard the theory. Yet the child could know that the tints earth and leaf put on as autumn draws near are the tints of the rest time, and that the analogy is one to follow out. Reds, not glaring and aggressive, but the hues we know as Indian reds, warm and brighten northern rooms, whilst blue, save in summer, sends a shiver all through one. That the floor should own the darkest tint in the room and the ceiling the lightest, follows the natural law of deep-brown earth and blue sky with its flecks of white cloud. As to the more complicated combinations and contrasts, only study of their laws and principles can make plain their real place and significance.

For the old this knowledge means an addition to life. There is a vital quality in red that warms and cheers, unconsciously often, and it should be the chief tone of the color scheme in the rooms in which they spend the most time. Happily for us all schemes of color in which the materials used may be of the richest, or of the cheapest, but in which harmony is the law, have been worked out for us, and any woman may study, as if it were a mathematical proposition, what harmonizes and what does not, whether in blendings or contrasts. If to such study she can bring a natural color-sense only waiting a touch to begin development, the way is clear, and for most American women this may be taken for granted.

It is plain, then, that we can have beauty in decora-

tion, if we only know enough to want it; and we can learn all that is necessary in order to want it without any desperate effort.

Mean as our houses are to-day, we can build an inner beauty which will help us to better living. "Often in a wooden house a golden room we find!" And the tired man and tireless child will find rest and growth therein. Moreover, the "golden room" will so work upon our spirits as to force us into better houses soon. The beauty within would teach us to see the ugliness without, and we should soon find it unbearable.

If the women of the world would develop a sense of beauty, would apply it, first, to that body which is the fairest thing God ever made; second, to the fit clothing of that fair body in all honor to the immortal soul within; third, to the encompassing household walls, within which so many of life's tenderest hours are passed and such high duty done;—by this threefold expression of beauty, the beauty which is truth and right, they would do more to elevate the race and purify politics than even the right of suffrage will accomplish.

Beauty, be it remembered, is the expression of the highest of all. Our familiar phrase concerning some well acting scheme, "That's the beauty of it!" is a true one. The beauty of a thing is its perfectness. Beauty in decoration is only a part of the beauty of living, but a most essential part. For there can be no true decoration without full understanding of the thing to be decorated, its place, use, and value.

There is one point of view from which this subject calls for our attention which is of deepest importance to both men and women; that is, the point of view of

patriotism. As a nation, we need a nobler art. The ugliness, the coarse disorder, in which we are content to live, is not only a national disgrace, but is also a direct check to needed growth. We should be more intelligent, more moral, and even more prosperous, were we more artistic. As it is now, though we have all the beauty of nature and all the art of Europe to draw from ; though we have great talent among us and abundant training, American art is hampered, dwarfed, and utterly distorted by the lack of a cultivated taste in the great public. While the housewives of America know no more of art than they do now, they will continue to raise the children of America in tasteless homes of discord and confusion ; and such children will grow up to form both our market for the artist's work, and the public opinion that governs it. The woman whose taste governs the market, governs her dress and that of her children and modifies that of her husband ; governs the furnishing and decoration of her house and helps to criticise more public products ;—this woman is an enormous factor in our national character. Two things she has to understand : What art is to the household, and what the household is to art ; then, using her power to the full extent, she can lift her race in great sweeps of progress towards the higher living we all so much look for, and so little work for.

Pure and great art in the home will help to make a pure and great nation.

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CHAPTER VI.

FURNISHING.

Organic Relation of Furniture to Humanity—Man Manufactures Extensions of his Body while the Animals Grow Them—Laws of Construction—Use and Beauty—Practical Conditions—Destructibility—Relative Value of Materials: Mineral, Vegetable, and Animal—Limitations of Applied Beauty—Essential Principles—Use—Ease and Economy—Evolution of House Furniture: the Seat, the Couch, the Table, the Cupboard, the Vessel—Vessel, Utensil, Tool—History, Distribution, Present Status—Relation to Class, Industry, Wealth, Sex, Age—Children's Furniture—Carpets, Rugs, and Cushions—Upholstery—Specialization and Personality in Furniture—Mobility as a Factor in Evolution—Ideals.

WE have found already in our study of the house, an unbroken chain connecting the soul of man with the surface of the earth, and in this chain, furniture, which touches the house on one side and the body on the other, is an important link. The word furniture is used here in its larger sense, covering all the household appliances, all movables, from the bedstead to the teaspoon. They are all part of the furnishing of the house; all serve for the extension of human power and activity, and all are evolved by the same great law which gives us feet to stand on and teeth to chew with. Let us follow for a

moment the lines of development which have filled our moving wagons with household impedimenta.

It is in this field that we find most fully exemplified that marvellous advantage of the human creature, who makes to himself innumerable ulterior conveniences in passive and active furniture, a writing-desk, for instance, being passive, a pen active, and thereby multiplies and develops his power a thousand-fold. All furniture is based on bodily needs ; and its value is to be measured by its right meeting of those needs.

A chair is meant to sit on, and so rest the body without lowering it to the earth entirely ; so saving the exertion of getting up again. It is safer, easier, cleaner than lying on the floor. Originally, a mere stool, the back was added to further rest the trunk muscles, and the arms similarly.

The literal fact of furniture being an extension of the body is easily enough shown. The human body of to-day is so constituted as to be able to receive such and such sensations, perform such and such labors, sustain such and such stress. It is an instrument varying considerably from the body of the early savage, or of a lower animal. In some ways it is superior, in others inferior ; such as it is, it is conditioned upon the furniture which allows its varied activities. If the human hand had to do all its work itself, as the monkey's paw does, it would not be the human hand. If we dug with it, we should lose the finer susceptibilities of touch at once, and grow heavy claws. If we used it for spoon and fork, with teeth our only knives ; if we were forced to do a tenth part of the day's work "with our bare hands," we should soon have no "hands" to do it with. They would lose the distinctive characteristics which make them hands. The infinite subtlety of

development shown in the special tools of some trades, needles for instance, paint, brushes, and the exquisite subdivisions of a dentist's tiny instruments,—these carry with them the hand of delicate and varied use. And were it not for such tools we should not have that hand as it is. The elephant's trunk and its one finger is a wonderful organ ; the flea has a good outfit of vivisecting tools in his mouth ; but there is nothing else in nature that approaches the human hand with its derivatives. That which makes it a hand instead of a paw is the capacity for varied use, and the capacity for varied use depends upon its tools. They are parts of the body, like patent detachable finger-nails, transposable teeth, and the like.

This being so, it is plain that the laws of construction, their use and beauty, must be considered in continuous regard to the human body. They have, of course, their own absolute condition besides; matters of durability have to be considered, as well as adaptability, and the relative value of different materials.

To the household economist, the chair represents so much physical rest, modified, of course, by personality ; so much beauty of its own ; so much relation to other articles associated with it ; and so much durability. To the average purchaser, a chair is not judged surely, even by the first of these considerations, and the others are lost sight of altogether.

Our forefathers who made things so strictly for use, and that governed as strictly by economy, missed but one factor of beauty, and that is ease. The beauty of any usable thing, from a leg to a ladle, is based on three conditions : use, ease, and economy.

"You must have something to stand on, must you?" says Nature. "Very well, here's a leg. Does n't

work easily? I'll fix it." And forthwith she adds joints and kneepans and all manner of ropes and pulleys to make it go. Then when it is strong to stand on and easy to use, she shears off all superfluities, and behold "how beautiful the limb is!"

The maker of the ladle is governed by the same considerations. It must be a perfect ladle to begin with; it must conform in every curve and line to the comfortable use of its holder, and it must have no needless weight or substance. Here is where certain ostentatious teaspoons fail of beauty—there is too much material for either our ease of use or their necessary durability, as well as often too much ornament for comfortable handling. The pitcher that does not pour well cannot be beautiful, though of gold; the glass so frail that it needs to be under glass for protection is not beautiful in common use; nor is the china whose easy use is its sure destruction. The spider-legged table and its insect family of chairs, the things that creak when we sit down and tip over when we get up, these are not beautiful.

If a thing is of a light and frail appearance, as a bamboo chair, it should also be so simple in its construction as not to suggest waste labor. And if a thing is rich in inlaid work or carving, it should be solid enough to endure time and strain, else its beauty carries a constant element of distress, and so ceases to be beauty.

Beauty, be it observed, is not by any means a "mere matter of opinion." Beauty has its laws and dies upon the infringement thereof. It is quite possible, of course, to believe an ugly thing to be beautiful, through association of ideas, false education, low perceptive faculties, and the like; but because a thing seems to a person to be beautiful, it does not, by any

means, follow that it is so. Take, for instance, the African admiration for extremely fat women, the Chinese admiration for deformed feet, our own admiration for deformed waists;—that a given object conveys pleasure to the eye by no means proves it beautiful. We Americans, as a whole, have a low national taste and need much honest study before we can recognize true beauty. And even after we have learned a good deal about it, there remains the endlessly varied application according to our personal and industrial and social and economic limits. When it comes to house furniture, that, like home architecture, is modified by so many necessities as to make any clear, high beauty impossible.

Suppose we begin to plan for parlor furniture: carpet, tables, chairs, sofas, curtains, etc. Everything has to be modified by many considerations. If it is a family room, it must not offend the personal taste of any member of the family. The varied use of every article by many people modifies its possibilities immensely. If there are boys, a certain grade of furnishing follows; if babies, another; if cats and dogs, another. Furnishing *depends*. It depends on so many things that we cannot hope for high beauty in the ordinary household; but still in certain rooms in some houses there might be noble furnishing; in others, much that is pretty; and in all, a harmony and sweet reasonableness now almost unknown. It is quite possible also for each of us to learn to know good furniture when we see it, as well as good architecture. And if our household exigencies require cast-iron and tow-cloth things, to see to it that they be harmoniously constructed.

Let us consider in detail one article, say a chair.

Being meant to support the weight of the human body, the chair's personal beauty requires that it shall show power to do this,—and not greatly more. If a chair looks strong enough to support a weary elephant, it is not beautiful; nor if it looks as though a cat's weight would strain it. Support is the first requisite of a chair. After that the relative comfort of the support enters into the beauty of the chair; it must in all ways conform to its use. These demands complied with, it has minor considerations of its own. Not being always occupied, it should not be so built as to suggest too painfully the absent sitter; a self-respecting chair has some character of its own. Grace and power in its lines, fine material, true decoration,—these may make the chair a thing of beauty in itself, even when empty. But none of them must ever interfere with the comfort of the user, the chair's *raison d'être.*

This reasoning holds good for every article of furniture. First, its use to man; second, its own laws of construction and decoration; third,—and here only the individual can dictate,—its relation to the thousand needs of household life. One generalization may be permitted on this line. Knowing that household needs are various and conflicting, and so require a low common denominator, no article in a room for general use should be of any marked eccentricity. The private room may show more of this; but high specialization in furniture calls for the same specialization in use, such as the peculiarly personal or professional use of the dentist's chair, barber's chair, invalid's chair. For household use, certain low-toned harmonies are best: things restful, useful, quietly beautiful, not too pronounced. A Bengal tiger on a hearth-rug, for instance,—one of the favorite designs of rug in many

middle-class English houses,—can never be considered as soothing, and it is happily being replaced by something less suggestive of barbarism.

The background for all furnishing comes under the head of decoration, and will be studied in detail in the larger course to which this volume opens. For the furniture itself there are always three principal considerations: (1) the size of the apartment in which it is to be placed; (2) the purpose of the room; (3) the object or use of the articles themselves. To these considerations others must be made subservient.

Then follow certain practical considerations: the nature of the materials to be employed, mineral, vegetable, and animal, their relative durability and destructibility. The nursery, for instance, or other room which children are to occupy with some sense of space and comfort, demands absolutely different treatment from that of the drawing-room given chiefly to the reception of guests.

Until within a generation, a "set" of furniture has been regarded as a necessity for a well furnished parlor, and the average housekeeper, having little money to spend, invested it in hair-cloth,—the most hideous as well as the most durable of all fabrics that the mind of man has ever evolved. In its natural colors, a species of iron-gray, it was a trifle less objectionable; but inscrutable desires on the part of the buyer brought the dyer to the front and gave inky and glossy blackness as the result. Repulsive in color, slippery in finish to that degree that no mortal could do aught but slide and slip uneasily on the cold and ungracious surface,—the New England mind seized upon this as the ideal, and for generations held to it with fervor. The rep set followed,—usually green or dark red,—and this was a

great step forward. Gradually, with the slow development of a faint sense of beauty, cretonne and other fabrics have come into use, while the growing familiarity with Japanese and other Eastern fabrics is teaching us the value of an admixture of mineral material, as gold and silver, or copper thread.

The cottage requires a lighter order of furniture than the mansion ; but this does not mean flimsiness of construction or poor material for covering. Wool invites moths, and in our furnace-heated houses where life is made easy for them, wool is always liable to their attacks. But there are beautiful combinations, very durable in quality, in silk, or cotton, or linen, as well as in silk and wool. It would be a delight at this very point to take up room by room with the best type of furniture for each ; but once more our limitations hold us back, and I can do little more than give a few of the genuinely good and helpful authorities: Sir Charles Eastlake's *Hints on Household Taste* still ranks as one of the best and most suggestive of these. The *Magazine of Art*, the *Art Journal*, and a few other art periodicals frequently give elaborate descriptions of artistic furniture with illustrations, sometimes with schemes of furnishing adapted to varying purses. All these the student can begin at any time to study, with careful attention to the models given in Litchfield's *Illustrated History of Furniture*.

The evolution of house furniture from its primal elements is a simple process, still going on about us. In the cave of our forefathers was the ledge and the boulder offering themselves invitingly to sit on, lie on, put things on ; and in the curved hand of our forefather bringing water to his lips, was the prototype of the dish. Leaf, shell, husk, pericarp ; he used what na-

ture gave him first, and then, of bark and skin, of clay and straw, began to fit new uses with new utensils.

So long as the hunter and shepherd ran about after their dinners, no high evolution of furniture appeared; the lacustrine population made more progress, and the agriculturist with his wealth of stores and permanent storehouse soon evoked a corresponding wealth of tools and vessels.

It is the multiplication of human things,—really the secondary powers of the wonderful body of ours—which we are following. In weapon and garment came man's first step: skin upon skin for warmth, tool within tool for power. And then, as things increased, the need for things to put things on, things to put things in, things to make things with. In the subtle manifold specialization of our great factories, you will find machines to make tools to make machines to make tools again,—an endless chain; but in our homes we are comparatively simple yet. The sewing-machine is our most complex development, and perhaps a coffee-mill or so. Otherwise, we have as yet the "first power" of furniture only; just "things" in their simple immediate relation to the body. Primitive furniture was very near its antecedent ledge and boulder: heavy, durable, immovable. The bed was often built into the house; as we find it to-day in Northern countries; the table stood finally in place; the chairs were things to haul around. The original cupboard—a crack in the rock or hole in the tree—no more advanced than the squirrel's—grew through various stages of closetry and shelving into our varied ramifications of movable wardrobes, bookcases, etagères, and whatnots.

When we say "evolution," it means always the same thing: "A process of development from indefi-

nite, incoherent homogeneity to definite, coherent heterogeneity by a series of differentiations and specializations." This is the story of furniture.

The British Museum contains six chairs, the earliest examples of the ancient Egyptian theories, and all about the same height as our present chairs. A beautiful one is of ebony turned in the lathe and inlaid with collars and dice of ivory, the seat being of heavy cane slightly hollowed. Another of turned and polished rosewood has a seat of skin and folds precisely like our modern folding-chair, but much more securely. They chose heads of animals for ornamentation, as the Assyrians did, and their couches, tables, and cupboards were all heavy, solid, and finely carved, the seats being upholstered or embroidered with the richest materials. Both the Greeks and the Romans used folding-chairs, carrying them in the chariot for use in the Forum, lecture halls, and the baths. Form and construction remained much the same, the Greek predominating and perfection of finish being regarded as the first essential, being in each case according to the material employed.

The renaissance in art made great changes in architecture, and all this transition was exemplified in the furniture. The princes and nobles of Rome, Venice, and Milan ordered and often designed the most sumptuous chairs and tables, cabinets, beds, and chests, and as an almost uniform training was given to the artists who resorted to Italy, the work done by them in Spain, Flanders, and Germany, especially under the reign of Charles the Fifth, can hardly be distinguished from that of Italian artists in the same period. Henry the Eighth in England, and Francis the First in France, encouraged this revival of the arts ; but the beauty of

this sixteenth-century work declined in the seventeenth century,—nor has it had serious attempt at reproduction until the present day, when fixed and often stupid and unlovely forms are giving place to genuine artistic designs.

The construction of a perfect chair means many things. Each part should be as perfectly united to the next as if it had grown in its place; and this means well seasoned wood, exactly cut tennons and mortices, very hot glue of the best quality, and the proper pressure in putting it together. Lightness for ease in moving is another requisite. If carving is used, it should be absolutely subordinate to the outline and the comfort of the sitter, never interfering with the dress, nor being liable to breakage from having salient points, masses, or ornaments exposed. The same general laws apply to couches and beds, and the ancients worked them out at once, held to them rigorously, and would look with consternation at our veneered, warped, misshapen products, made to sell, and utterly cheap and mean in expression.

The sensitive touch of the human hand must be in anything that holds high artistic quality, and the factory can never give us distinctive work. As we learn once more this law known thousands of years ago, each of us will want at least one piece of furniture designed by an artist,—by ourselves if we have artistic perception, and in time we shall all return to the earlier ideals, learn the place of ornament, and gain once more a distinct conception of a bed, a chair, a couch, a table. The evolution of each is as clearly traced as that of the chair, and in a volume on *The Home Life of the Greeks and Romans*, one finds the history of all they regarded as being called furniture.

The most perfect adaptation to the use required of it, and the utmost beauty of line and finish, characterized even the simplest and humblest piece of furniture or bit of pottery ; and to gain again the beauty of these two essential points, in our modern work, we must study the creations of the past and learn the thought of the beauty-loving Greek and of the nation that followed in his train.

In its intimate relation to human life, furniture forms a direct expression of the class, "age, sex, and condition of servitude" of its user. Each class varying in needs, varies commensurately in its furnishing ; another evidence of its place as an extension of human power and activity. As the human creature varies and develops, his furniture varies and develops, in absolute relation to himself.

Poverty, luxury, intelligence,—all are shown in the furniture ; the upward growth manifesting itself quickly in luxuriant outbursts of new things ; and the downward, in the slow processes of unrepaired decay, or the quick stripping of sale or confiscation.

It is our misfortune—the misfortune of those of us who have approximately what furniture we want—that our evolution into heterogeneity is neither definite nor coherent ; that we do not grasp the principles which relate the development of furniture to life, and therefore the orderly arrangement of our rooms and the carefulness of our dusting do not give truth or peace to discordant collections of upholstered articles having neither intrinsic nor relative beauty. Here, as usual, the higher specialization of man's work has given him more perfect furniture. A finely-appointed office or study with its desk breathing embodied business, its chair of complex possibilities and perfect com-

fort, and its revolving book-case that seems so glad to serve the wish of the master; this shows a more advanced degree of furnishing than is often possible in the home.

In this fact, also, we find one of the divisions on sex lines which is so unfortunate in its results, and which our women would do well to study from a sociological point of view. Let the student of household economics, whether practical or critical, carefully examine the kitchen of a buffet car or of a ship; let them note with the dispassionate eye of the student what a laboratory is, how a store is arranged, the elements involved in church furniture, school furniture, etc. Let them carefully note the smooth conveniences of a well-appointed club-house; and then let them return to the average drawing-room or parlor, and,—well, I think meditation would ensue.

Why does a man prefer a leather-covered, stuffed easy-chair to a rattan rocker with a pink ribbon woven into its orificial decoration, and a tidy pinned to its back? The preference is not a matter of personal opinion merely; nor is it a matter of sex, necessarily;—your woman of business does not admire the cobwebby rocking-chair above the smooth comfort of the other one. The leather chair rests the body, does not stick to the clothes, does not in any way obtrude itself upon the notice, does not adhere to our backs when we get up, does not tip over when we touch it. The leather chair is a piece of true evolution rightly modified by present needs. It is not so nobly beautiful as the Greek chair or the Roman chair; but it is beautiful in its right service of existing man, and so, legitimately beautiful, after all.

How came to pass the other thing with the tidy on

it? What evolution has bestowed upon us the museum of tip-overables in our rooms which should breathe only of rest and pleasure?

The process is something like this. The average woman's life is so spent in conflicting interests and industries that she cannot develop any true taste for large truths of relation. She is used to unrelated activities and their unrelated utensils; used to going from stove to dish, from dish to duster, from duster to sewing machine, with one hand rocking the cradle all the time; and it does not therefore distress her to see a ribbon on the parlor coal hod, a gilded milking-stool painted with pansies, or a rolling-pin covered with velvet. Relation is not in her life, and she does not feel the need of it in her furniture. She herself must answer a multitude of needs; why should not the table carry everything we choose to put upon it?

If she were sensitive to the discord around her, she would die sooner than she does,—which is needless. Moreover, our women, in their comparatively sheltered lives, develop more of personality, whim, caprice, passing and changeful preference,—just as children do,—a thing that more general life modifies in man.

It does not occur to a man to express his personality in his furniture. He does not "like it this way" and that way, and the other way; and change it about for variety's sake, as she does. He got it for a purpose; placed it for a purpose, and uses it for a purpose; "liking" it only as it serves his purpose. Therefore, he does not tire of it, and it does not tire the beholder.

Now lest it may be thought that I wish to turn pleasant homes into a howling wilderness of leather and hardwood, let me hasten to say that, within the limits of easily learned artistic laws, this very person-

ality and variability, the modification to multiple use and occupancy, the teeming suggestion of youth and age, and all sweet, natural living,—all these are just what gives house furniture its charm. Just as woman herself, comparatively unspecialized and so still promising all things, serving as the artist's and the sculptor's type of great thoughts,—standing for the figure of Liberty, Justice, Truth—because she is not too closely fitted for a special task, but expresses humanity in the abstract; so our household furnishing which does not speak of work but of rest; not of concentration but of diffusion; not of where we are going to but of where we came from,—breathe calmness and beauty and peace.

Two things most needed in our conception of right house furnishing are these: (1) The elimination of all that speaks of toil. Home is peculiarly a place of rest; though the birthplace of all industries. All the special furniture that speaks of special task should be as far as possible banished, or at least concealed. The large relation of these bodies or parts of bodies should be considered, and the whole scheme speak of the highest harmony with our highest life.

(2) A thing of vital importance, yet little thought of. While our home is from the beginning and most essentially "the place of children," yet we do not either in building or in furnishing allow for their needs and pleasures. It is a peculiar oversight, and one which will be remedied when the household economist has voice in the choice or building of the home and its furniture. As it is now, we who were brought up in homes where our own childhood was unplanned for, and who going to the new nest, think more of Cupid and Hymen, and possibly of Mrs. Grundy, than we do of the family the home is meant to shelter, make no

provision in our purchasing for the larger half of the occupants. There are more children at any one time than there are grown up people, we know,—and they are more important. And they are "always with us." Children as a permanent class have yet to be considered, but such they undoubtedly are. Should not then the furnishing of the child's home—*all the home the child ever has*—be planned with some consideration of his needs and pleasure? As it is, the most he can hope for is a "high chair" to bring him to the adult table, —and possibly a little rocker to hug and fall down stairs with.

The children "must get up off that floor," of course, for though it is the child's natural resting place, it is not arranged for his health and comfort; they sit in people's laps for a while, or struggle about uneasily in big chairs and sofas, or disport themselves on stools and hassocks under protest; being harried meanwhile with constant directions as to how to sit, and reiterated commands to "keep quiet," until they can go out of doors or to bed.

Even when they are out they are usually cautioned not to sit on the ground, but vainly—thank Heaven!

Now I do not mean that a human home should be furnished like a kindergarten, but that there should be, so to speak, a kindergarten in every home or near one.

The child should have his furniture as well as we. And furthermore, knowing that our homes are the homes of children we should not fill them with articles of constant temptation to the normal activities of childhood. A human home is not a museum; it is a place to live in, peaceably and peacefully, young and old,—more especially the young.

Fortunately, this need is being in degree recognized, and furniture of good quality is being made for children's use, from the little enamelled iron and brass bed (the most rational type of bedstead), to the small bureaux, tables, chairs, and other fittings that belong with them.

The room in which much living is done; living with its innumerable modern demands,—requires substantial as well as beautiful furniture. And no one has better given the essentials than William Morris, who in an essay on "The Beauty of Life" in his *Lectures on Art*, describes what he regards as essential to the ordinary sitting-room of a healthy person:

"First, a book-case with a great many books in it; next a table that will keep steady when you write or work at it; then several chairs that you can move, and a bench that you can sit or lie upon; next, a cupboard with drawers; next, unless the cupboard or the book-case be very beautiful with painting or carving, you will want pictures or engravings such as you can afford—only not stop-gaps, but real works of art on the wall; or else the wall itself must be ornamented with some beautiful and restful pattern; we shall also want a vase or two to put flowers in, which latter you must have sometimes, especially if you live in a town. Then, there will be the fire-place of course, which in our climate is bound to be the chief object in the room. That is all we shall want, especially if the floor be good; if it be not, as by the way in a modern house it is pretty certain not to be, I admit that a small carpet which can be bundled out of the room in two minutes will be useful, and we must also take care that it is beautiful, or it will annoy us terribly."

This last is a trifle extreme, but for the rest, I think we may admit that both children and their elders would be far more at their ease if every item were carried out literally.

I have been in houses where from top to bottom there was absolutely not one spot where one could really live, since beds were too fine to lie upon, chairs too frail to sit on, tables too shaky and uncertain for comfortable writing or drawing, and all things over-ornamented, and generally calculated to spoil temper and shorten life. Can we suppose the child with his sensitive organization is not tormented and hampered in the same way? For them, if for no other reason, we need to study the laws of furnishing and give them models that will form taste and make cheap vulgarity ever more impossible.

There is often more art in a cheap woodcut or process reproduction, than in miles of the high-colored horrors that do duty as pictures. Good art in photograph, engraving, etching and cast is possible for all. It needs only the educated sense, and towards that we approximate more and more each year. We shall study it by and by with delight.

The factor of mobility, not only in the evolution of furniture but also in our relation to it, is an important one to the student. Remembering the principle that the value of human production is in proportion to its durability and usability,—to the number of people who can use a thing and the thing for which they can use it,—we see that the value of a special article of furniture is greatly limited by personality. If a person is peculiarly shaped, and his chair is peculiarly shaped to fit him, the chair is less valuable as a chair; it would sell for less at an auction. On the other hand, it would cost more to have it made and it is of far more value to him by reason of its very peculiarity.

There is a line to be drawn here in reference to personality. If we do one kind of work and are accus-

tomed to one tool only, there grows up a certain intimate relationship between that tool and ourselves which greatly adds to its usefulness. But should we lose it and be forced to use a slightly different tool, the change detracts from our usefulness. To have our comfort or our power depend on our own special furniture may thus be thought to be a limitation of use in the line of racial retrogression.

This statement has its limitations. Merely mechanical work may change its tools at will, though it is found that the more skill enters in, the more the workman inclines to his own tool. When it comes to the higher realm where art speaks, we do not need to recall what the Stradivarius means to the violinist, every fibre in it the spirit of past music and the promise of more exquisite tone to come. For the literary worker, his own desk, his own pen, are a part of the ease of expression, and the pen seems often to have taken on powers of its own. And so, up to a certain point, we have the right to hold to our own and recognize the spiritual significance of our own. Subtle essences that man will presently analyze and know, have passed into all that we use, no less than into the very walls of our houses. The "sensitive" knows on entering a room the quality of the occupants, past and present, and this power for the few is the guaranty, not only of like power to come for others, but of a knowledge that will in time make all dwellings holy, and every vessel fit for sacramental wine.

When these laws and principles are better understood, we shall find life a nobler, sweeter, easier process. The child surrounded by beauty and order will grow up smoother and rounder in character, less irritated and rubbed awry. The adult living among orderly

and beautiful forms, all peacefully serving their uses, will find a clear atmosphere, either for work or rest,—and the improved grade of humanity so fostered will manifest itself in kindred improvement in every other branch of sociologic progress.

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CHAPTER VII.

HOUSEHOLD INDUSTRIES.

Structure and Function—Functional Development of Society and Domestic Industries—Order of Appearance of Domestic Industries and Progress toward Higher Specialization—Relation of Work to Worker—Effect of Special Industries on Body and Mind—Exercise more Important than Environment; Action than Reaction—The Division of Labor—Sex in Industry—Distinction one of Degree, not of Kind—Jane-of-all-Trades—Arrested Development and Suppressed Specialization—Effect of Racial Growth—Present Condition of Domestic Industries in Relation to Social Economy and Personal Development—The Two Remaining Functions, Nutritive and Excretory.

WE have come now to the second division of our work together.

In the first lecture I spoke of this course as treating of the statistics and dynamics of household economy, or more closely, of the structure and functions of the household. The preceding six lectures cover the structure from the house in its relation to the earth's surface, to the last touch of furniture and decoration in its relation to the human body and the human soul. In the remaining six lectures we shall study the functions of this household organism; those activities on which it is conditioned,—without which it would not exist.

No part of our subject so plainly shows the relation of household economics to social economics,—the latter in all its varied development being the natural outcome of the former.

We are apt to speak of the home as the unit of the state ; it is not that in our accepted sense at all, but it is the parent of the state ; or, more properly, the seed from which that mighty tree sprang first and from which it is constantly renewed.

The state and its economy is the larger and higher form of living, resultant from the household and its economy ; and they interact one upon another unceasingly. All the activities and affections which maintain social life had their origin in domestic life ; all the magnificent work now done by men together for the service of the world was once done by men apart for the service of their own homes.

Before following this line more closely, let us look for a moment at the functional nature of society itself, to see what is its reason for being. In the economic sense, society is an organism built on the same plan and for the same purpose as any other organism ; namely, by co-ordinate service and relation to secure more food with less exertion, and so set free nervous energy for higher development. More safety also is a primal object ; more shelter ; the saving of labor. Society is just such a convenience to people as a comfortable body, with teeth and claws and warm fur is to poor huddled masses of primordial cells. Its evolution follows that same agreeable formula we know so well ; finding in the savage state its condition of "indefinite incoherent homogeneity," and in our manifold subtle ties of subdivided labor, each man doing his fractional share in the great concert, its "definite coherent heterogeneity."

This process in society has been identical with the process in the single organism—the cells, combining, assume varied place and work, and so develop a high degree of special power by virtue of the division of labor and exchange of product. And as in the lower organism the primal functions are simple, long consisting only of the external and internal processes of nutrition,—so society's main business at first was the gathering and distributing of food. The little organism, pressed by conditions, developed organs of defence and offence. So did society; and primitive society, like other low forms of life, lived in incessant warfare, having its analogy in the industrial warfare of to-day.

The highly developed organism, with its subtle interplay of function, its elaborate plan and perfect accord in action, its intense activity of special sense, with its high value, is perfectly paralleled by a civilized society, where a thousand industries serve one another, and the highly specialized arts and professions lead and direct the industries.

In this process the household leads the world in the sense of coming first,—not in the sense of keeping ahead. On the contrary, it remains far behind, and at present fails largely of its use to society because of its retarded industrial development.

Primarily, when the state was not, the family was the state; a small and necessarily limited form of government, but essential to begin with. Within its little round came into being the parent arts and crafts: all those incipient industries, fictile, textile, and the others, —the constructive industry of man applied to the materials around him; wood, stone, straw, clay, skin and fibre, metal and mineral.

To transmute the outside world into humanness,—

to turn these varied constituents into new forms, making them part of the organic structure of humanity, and part of a higher and more complex nutrition,—this is the use of human industry, and it began at home. Also the woman began it. Representing, as she does, the anabolic or constructive energy in nature, it is natural that she should begin to produce new forms of food and clothes and shelter; creating and conserving, while yet the man followed only his primal tendency, the katabolic,—to destroy and waste.

Drummond has shown us how the mother's love is mother to all love—to all the human feeling that makes our life possible. We have further to see how the mother's industry is parent to all industry. The same spirit that urges the mud-wasp to enclose insects with her eggs that the new-made baby grub may have to eat, and that drives the multitude of ants and bees,—co-operative mothers all,—to toil endlessly to provide for the coming young,—this it is which has grown into the father's heart from the mother's and that now fills the granaries and warehouses of the world.

Similarly, too, the first human industries are of exactly the same order as the animal ones; methods of obtaining and preserving food. The very first,—getting food,—still finds its expression in the great primal industry of fishing. Hunting as an industry is not worth mentioning now. It remains with us only in the form of a "sport"; a depraved survival of a low exercise. Keeping food alive, the next stage, developed into the pastoral era of humanity, and still survives in our vast and complex enginery of meat supply. Then came agriculture, first practised in relation to the home, and growing to our world market of production and distribution. Women began it to feed their young.

This is the limit of our food-supplying industries. There are no more things to eat, and their higher development as social industries rests on their extra-domestic exchange and distribution.

The abundant and preservable supplies of food which agriculture brought demanded vessels, bins, store-houses,—and these all began in the patient labors of the savage mother for her young. The original selection and construction of shelter, both for family and stores, was hers also, with all its growth into architecture; and the meeting of primitive domestic needs, in furniture as in utensils, gave rise to all our varied manufactures in those lines. Clothing was for long her absolute field; but that, too, is now a world industry, as it should be.

The higher and more varied arts and sciences, not to be traced directly to the home, are but further differentiations of energy along lines of work which did start there. Ship-building and commerce, for instance, arose from the superfluity of food produced with the development of agriculture and from the preservation of that food for future or distant use. Similarly, the physician is as direct an evolution from the savage mother nursing her child, as is the *chef* or the chemist from her humble processes of cooking.

The law of evolution works in industry, art, science, language, religion,—everything that *lives;* and all human life began, as it still begins, at home.

No wonder we love the word. It has more in it than the wildest sentimentalist has dreamed of yet; so much more that our ordinary attitude toward it, compared with what it should be, is one of gross disrespect. Nevertheless, let us remember that its value is as a place of birth of all these things,—and that the home

of to-day is shorn of half its dignity and power by our forced retention and restriction of certain industries therein—industries long since ready for higher development.

As these industries appeared in the household, one by one, budding out from within, so they grew out and away from it, falling into the hands of man, who is the natural avenue of specialization, in that his generic functions do not keep him, as the woman's keep her, necessarily more potential. Take one branch, for instance—say the making of vessels, the potter's art. The primitive woman made for her family uses primitive vessels, of primitive materials, for primitive needs. Alone, she could do no more; and the primal mother was necessarily alone. The evolution of an art requires, like every other evolution, more than the mere repetition of individual efforts. It requires with each step of advance, co-ordination more and more complete, and such accumulation of energy and material as shall make experiment possible. The higher organism can make experiments that would destroy the lower; can sustain exertions and bear extremes. It has larger margin, and therefore larger gains. Hence these liberal arts grew out from their individual function and became social functions; sometimes retaining a hold in the earlier place, and sometimes not.

Agriculture remains partly special at the same time that it is so infinitely general; the same farmer may raise food for his family while he also raises food for "the market"; but few families make their own dishes or their own shoes. The progress from the coarse clay bowl of the primitive woman to all our marvels and mysteries of Dresden, Satsuma, and Royal Worcester, is one which requires constant division of labor and

co-ordinate service; a progress which demands the special place to work in, tools to work with, and life to work. Each industry must be separated from the others and pursued by itself with united effort by many people before it can become great.

Even where the pursuit is followed at home, as in many Oriental products, the specialization is there, growing from father to son in long lines of cumulating excellence, and carefully preserved from cross currents of other occupation. Here comes in a question of absorbing interest; one just beginning to dawn on the social economist, and coming home to the household economist with profound importance,—namely, the relation of work to the worker; the effects of special industries upon body and mind.

In its superficial form, this question is brought before us in the increasing discontent of labor the world over, and in our own branch of study in the increasing discontent of women with their special labor in the home. No scientific analysis, that I know of, has been made of this subject; no inquiry into the deeper significance of this wide revolt against given forms of labor, the expression women chiefly notice being in domestic service.

The moralist replies loudly to the effect that the more disagreeable a thing is the better it is for us; and the scientist contents himself with some muttered remarks about the "struggle for existence" and the "survival of the fittest."

Let us make a distinction here which we need in our special study, and which may be a boon to the social economist. It is this: The organic activities of society are only a struggle for existence, in the sense that the activities of our heart, lungs, and liver are a struggle

for existence. The smooth and orderly interaction of social industries is as important to our social existence as a good digestion and respiration are important to our existence. When we breathe with difficulty or digest with pain, we do not dismiss the fact airily as part of the struggle for existence, and leave the survival of lungs or stomach to take care of itself. The harmonious development of industry is of vital importance to the life of society, and we should attend carefully to its processes.

That for the scientist. For the moralist this: He says that all labor is honorable; that it makes no difference what we do, if only we do it in the right spirit; and to women especially, that the nobility of their task fully counterbalances any ignobility of methods. To which let us reply that labor is a human function, that function makes organ, that organ is developed according to exercise, that exercise is what modifies us most; —that *what we do makes us what we are.*

We have been studying the effect of material surroundings upon character, and find it to be deep and constant; but man is modified far more by exertion than by environment. To be surrounded by beauty and right construction is of value; but far more valuable is it to make things beautiful and right. Better make palaces and live in a hut than to make huts and live in a palace. Better make beautiful garments and live in rags, than to wear beautiful garments and make rags. Action is stronger than reaction on the human soul. The slow effect of right surroundings does not compare with the quick effect of right doing.

With these facts in view, let us see if the kind or degree of industry practised by a human creature is of no importance. Does it make no difference to a man's

character whether he be a butcher or a shepherd? Whether he is a soldier, or a tailor, or a priest? Take that one familiar instance of the soldier. Here is a number of men widely dissimilar in birth and early training, taken when full grown and already showing marked divergence. They are forced to undergo the same conditions and perform the same actions for a period of years. Result, THE SOLDIER, a sub-species of *genus homo*, most marked in character, physical and mental, easy to recognize and describe. Let it be said in passing, that the reason this can be done so well with the soldier is that the traits required are those common to primal humanity; save the obedience and cleanliness, and these are perceptibly essential and violently enforced. It is a case of reversion; a crushing back of the frailer but higher development of society into dense early form for definite use; noble and not to be lost sight of, as is the case with all primal functions.

That which produces the soldier produces also the merchant, the mechanic, and the cook. The work makes the man, other conditions being equal. Not only does the kind of work affect the worker, but its degree. And this is where our household industries are involved most closely. The moralist who speaks so beautifully of the lofty rank of these labors of the home, is right and wrong in the same breath.

All functional processes of humanity are essential, and so noble. Their rank,—if they have any,—depends on which way we count. The stomach is the oldest in the body, the kitchen is the oldest in humanity. Are they therefore noblest? The highly specialized brain is the latest in the body, the highly specialized administration the latest in humanity. Are they therefore least noble? Is the instant provision for

immediate and special needs a nobler task than the provision for ultimate and general needs? Is the work of the cook really superior to that of the statesman?

Ought we not to cease prating of nobility in labor; see that all is essential; recognize that man's path leads upward and that all functions must be lifted with him? And as the more primitive forms of labor come from the primitive mind in primitive conditions, so does the preservation of those forms tend to preserve the order of mind that produced them.

All labor began simply in individual hands; and all labor progresses by division. The division of labor and its pursuance by the specialist lifts it into place in the social organism.

Too high specialization is a danger which we need not at present discuss, as it never has come within a thousand miles of household industries. Our danger is the other way. Those forms of labor which still remain with us, remain in a condition of arrested development and suppressed specialization, which is alike injurious to the individual and to society. Division of labor is twofold: it consists not only in the number of individuals engaged in it, but also in the minor parts into which the labor itself is divided. The only degree in which this can be practised in domestic industries is where the united energies of the entire family are occupied in the same task, as in harvesting, or where each is allotted a part of the same task, as in the combined effort to prepare a Thanksgiving dinner.

Another and equally important factor in the development of industry is rigorously limited in the household; that which elevates a work in proportion to the number it is done for. Indeed, we might formulate as follows: Human industry is developed in proportion

to the number it is done by and the number it is done for.

Take, for instance, the effort of self-defence—"Nature's first law." It is natural, necessary, and so noble, if you like; but low in the evolutionary and the moral sense. The defence of one's family at loss to oneself, is a higher and more valuable form of the same feeling; and the defence of our country, even at a loss to our families, is higher and more valuable still. The greater includes the less. The whole is more important than the part.

The only grading to be used in regard to labor is the evolutionary one. Labor is low or high in proportion to its degree of development, and that is to be measured by our formula of value in proportion to the number of people it is done by and the number of people it is done for.

There is no break in the line of industrial evolution from the savage spearing a salmon to the United States Fisheries Commission; but it is a higher grade of labor to work for the national fisheries than to go a-fishing for one's own individual pleasure or profit.

Evolution has but one rank: that of progress; and progress is from within outward and from below upward; from the simple to the complex, from the individual to the general, from the private to the public.

Our aversion to what we call "selfishness" is an instinctive recognition of the low grade of mere private interest.

The evolution of industry is the evolution of humanity. The grade of labor is its station on the line of evolution; and any form or degree of labor which belongs to a lower period of human evolution is *de-grading*.

Again, our instinct is truer than our supposed morality ; we are right in saying " I won't demean myself by such work."

Were women once to realize the underlying ethical force and quality of this protest, it would be the first step toward combination for the performance of some tasks, done now imperfectly and painfully by unskilled and degrading labor. Trained intelligence has small chance or place in the scheme of the average housewife, and this always recurring resolution, " I won't demean myself by such work," is regarded as purest insubordination and unjustifiable discontent.

For the individual protestor, there is no doubt that this is often true. For the mass it is the voice of half stifled evolution, which yet in spite of us goes its appointed way, and, with or without our consent, in due time will reach its goal.

Here, we are forced to consider the peculiar distinction of sex in industry, which, so far, is mainly one of degree rather than of kind. All industries, as we have seen, began with woman ; and those which have stayed with her have stayed where they began. She does all kinds of work, but she does it in the first degree. Only recently has woman entered upon the road of industrial evolution, in teaching, for instance,—one of the mother functions,—differentiating, specializing, advancing to its true place in modern civilization. But household industries remain perforce in the first degree. The structure of the house has increased in complexity on natural lines, because its making has fallen into the hands of man and become highly specialized to match our lives ; but the functions of the house have not so increased in specialization. The house itself and all its contents is now made by the many for the many ;

but the industries of the household are still practiced by the few for the few. And the distinction is drawn sharply on sex lines.

The sociologist might follow here a delightfully interesting line of research,—bringing ethnology, anthropology, physiology, biology, and psychology to his aid; but we will merely indicate the facts without wandering too far afield after cause and effect. What we wish to consider is the degree of development of household industry;—its effects on the home and through it on the world; on woman and through her on the race.

The industries of the household are still practised by members of the household in so large a proportion of our homes as to make it the general condition; and otherwise they are practised by persons hired to take the place of members of the family,—a phase of the subject to be considered in the lecture on service. Here it is sufficient to premise that labor done by proxy is not labor advanced. To hire a man to go a-fishing for you while you loaf, is not a step nearer the United States Fisheries Commission. The only division of labor in the household is our partial attempt to separate its component industries,—as when we distinguish between cook and laundress, and even, in wealthy families, admit of assistants in their several tasks. This, however, is no further along than when the castellan had among his retainers armorer and armorer's assistant, chaplain and herald and praiseful bard,—it is one step beyond Robinson Crusoe and his man Friday, and that is all.

In the enormous majority of cases, however, our women "do their own work," while those in next largest proportion hire a "maid of all work" to do it

for them. The work, as work, remains at the stage of development which can permit of such compound performance. Again, the popular sense speaks true: "Jack of all trades and master of none." The household laborer is necessarily that.

Study for a moment the inevitableness of it. Here is a cluster of allied industries practised in the household: cooking, washing, repairing, nursing, teaching, sewing. Each of these is a great social function capable of high evolution. As soon as any one of them grows to a degree which requires more time, strength, and attention than another, that other must suffer. They are all constantly tending upward and outward, like the rest of living things, yet the sum of their progress must be measured by the sum of the multiple operator's power, and their relative progress measured by the varying demands of the family.

Thus, in some families more sewing is required, in others more cooking, in others more nursing; and these demands vary in the same family as the years pass.

Therefore, the development and specialization of the human brain, which keeps exact pace with the progress of these external forms of human life, is checked and limited on every side; and kept in a swaying, negative condition, which allows life in the worker and performance, of a sort, in the work,—but no further progress in either. "Jack of all trades" must be "master of none"; and his trades remain in abeyance as does his mastership.

Think for a moment of the effect of this condition on our racial growth,—remembering that it is not distributed indifferently among the people, but confined almost absolutely to that half the world which, through motherhood, modifies all the world. This continuous half,

with its unceasing and unbounded effect on all, is kept in a condition of arrested development and suppressed specialization industrially, which means a similar condition mentally. It is an amorphous, low grade industrial state in half of us, carried on at the same time with a sharply defined, high grade industrial state in the the other half. The effect on the individual human organism is to retard mental development and action, and on the social organism to retard industrial development and action.

At each step in statements of this order, we face that blank wall between women and true progress erected chiefly by their own hands and bearing at intervals such mottoes as "Blessed be Drudgery"; and all the long list of kindred sentiments, ingrained by repetition and custom in the very fibre of women. Because a thing is hard we are instantly inclined to think its doing an added virtue and to secretly plume ourselves on another specimen of feminine self-sacrifice. In fact we should blush for shame that in the process of the suns, we have learned so little, and that the shiftlessness of public housekeeping at the hands of our men is merely the reflection of our own unthinking, unreasoning methods in life and work. And if you think this mere denunciation on my part, turn to Mr. Ward's *Dynamic Sociology* and, in his section on Woman, learn what she has done and failed to do as the sober scientist sees it.

As to the effect of these methods I shall quote here some lines by a woman whose powers of sarcasm are only equalled by her superb good sense, her insight and sympathy,—Charlotte Perkins Stetson,—reminding first those of you who may never have thought of doing such sum, that, to prepare the simplest meal for a family,

means not less than two hours of work, this being from its inception to the final clearing away and cleaning.

"Six hours a day the woman spends on food!
Six mortal hours a day.
With fire and water toiling, heat and cold—
Struggling with laws she does not understand
Of chemistry and physics, and the weight
Of poverty and ignorance besides.
Toiling for those she loves, the added strain
Of tense emotion on her humble skill.
The sensitiveness born of love and fear
Making it harder to do even work.
Toiling without release, no hope ahead
Of taking up another business soon,
Of varying the task she finds too hard;—
This her career, so closely interknit
With holier demands as deep as life,
That to refuse to cook is held the same
As to refuse her wife and motherhood.
Six mortal hours a day to handle food—
Prepare it, serve it, clean it all away.—
With allied labors of the stove and tub,
The pan and dishcloth, and the scrubbing brush.
Developing forever in her brain
The power to do the work in which she lives.
While the slow finger of Heredity,
Writes on the forehead of each living man,
Strive as he may, 'His mother was a cook!'"

These are the facts. That each task may be done with happiness, with satisfaction that those we love are served, alters no whit of the indictment. There is a better way and we must learn it.

At this point, let me tell you once more that I am not the expounder of any theory, but the mere fact-grubber, giving you in order facts as I find them, and

allowing them finally to speak for themselves, as facts have a way of doing. And before their voice is heard in any summary of their real meaning, we will once more refresh ourselves with remembrance of what we all know: that there have been many minds among our American women amply able to cope with and conquer difficulties. That life for them was far less complex in its demands than it is for us, is in part offset by the fact that they were compelled to handle many industries now dismissed from the household. But over and over again we read, or we know by personal knowledge, of women studying Greek as they rocked the cradle, or hearing the lessons of boys preparing for college, or coaching the divinity student, a little rusty in his classics.

Lucy Larcom's *A New England Girlhood* and Mrs. Susan Leslie's *Recollections of my Mother* give in detail the passion for study and the sacrifices made to secure it; and that wonderful mastery of detail summed up in the New England phrase "A woman of faculty," is part of the story of our grandmothers, and no less part of our own advance as a people. Honor forever to those homes, and the mothers in those homes, who gave us day by day evidence of what power lies in human will and human love. And then let us remember that in this incessant and tremendous strain upon every power was consumed a portion of our own birthright, and that the overwork of our grandmothers has robbed us of our full and proper portion of nervous vitality.

And let me add that word of Nathaniel Hawthorne's, "God be thanked that gave us such ancestors, and God be thanked each generation removes us farther from them!"

Of all the myriad things their hands did, and did well for the most part, but two remain to us unchanged in their daily recurring demands: cooking and cleaning. Have they improved in their methods? In the advance which marks every form of industry,—the specialization of each of their phases—the perfecting and simplifying of processes—have either cooking or cleaning kept pace with those others? As one who has lived in every part of the United States, and who in these later years has studied deeply the conditions among the poor, and especially among women wage-earners, the only answer I can make is No. As a whole, in spite of our splendid food supply, we are one of the worst fed nations in the civilized world. And I beg that I may not be instantly understood and reported as claiming that we have no good American cookery. We have delicious and distinctive American dishes, but in the one matter of bread alone, how often do we find, as we travel, a perfect product?

You, of course, my neighbor, make an irreproachable loaf, always even in quality and good for food; but have I not heard you express your opinion of Mrs. Jones' loaves and her sad ups and downs in results? Have I not heard your own wail that you have no luck in this or that combination? Luck! Does the chemist talk of luck or no luck in his experiments? Cooking is a chemical process, and its conditions should be as carefully watched as is all that goes to make the perfection of a chemical process. In East and West, North and South, trained intelligence in cooking is the exception, and depths of imbecility the rule. I have seen the mechanic or workman's wife put her lump of beef in a cold pan with some cold grease, and set both on the top of a red hot stove to

scorch peacefully the appointed time, until, as she dumped it on the platter, no man could tell if it were fried beef or fried boot-heel. Saleratus biscuit and bacon are the staple diet three times a day for thousands upon thousands in our country, and, especially in the cities, we have synchronous anachronism side by side—the princely house of a Vanderbilt perfect in every minutest detail,—a *chef* presiding in the kitchen and composing his menus to the sound of music, with a corps of assistants waiting his orders, and in the same street far down toward the river, and the factory region, the method I have mentioned,—the meal warranted not to feed and leaving the eater with what he calls a "goneness," the remedy for which he seeks in the saloon. Tea boiled in a tin tea pot and rank with the tannic acid thus produced; bread white with alum—these are the staples for the laboring men and women of our cities. Nor does the country fare much better. It is time that we call a halt and ask if these industries must remain forever hampered by the unreasoning methods of the past, and if there be not some practical method of lifting them, no matter how slowly, from the dead level on which they still abide. The stir of thought and feeling is evident at every point where intelligent thinking goes on, and the formation of the National Household Economic Association at Chicago in 1893, with its numerous branches since organized, indicates that there has been begun at least a welcome new departure. Many phases of cooking are already being removed from the house, pickling and preserving, for instance, being largely done outside, and many women making a specialty of delicate and careful work in one or the other.

As to cleaning, compare the scientific antiseptic

methods of the modern hospital with our still primitive processes in the home. The soul-wearing spotlessness of the New England housekeeper—that one, for instance, who when she asked company to tea, immediately scrubbed the cellar stairs—has its offset in the frowsy shiftlessness of the poor white in the South, or in the workman's home of the North, or even in this same model New England housekeeper's utter ignorance of the real sanitary laws of the house as an organism.

In short, the time for better methods is ripe. The sense of helplessness and distraction that, in spite of us, invades our homes, means simply that we are to be forced to think, and that out of this transition time is to come all the good toward which we have blindly blundered; but which is our certain portion,—and to come through our own concerted, conscious action,—no more blind and stumbling, but a steady march forward; no more distracted and oppressed, but confident and strong, and singing as we go:

> "I feel the earth move sunward;
> I join the great march onward,
> And take with joy while living
> My freehold of thanksgiving."

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CHAPTER VIII.

THE NUTRITION OF THE HOUSEHOLD.

Nutritive Function of the Household in Relation to the Individual; in Relation to Society—Processes of Nutrition in Organ; Organism and Organization—Importance of Nutrition to Life and of its Secondary Processes to Development—The Struggle for Existence—Man's Victory—No Longer a Struggle but a Growth—Household Nutrition Merely a Stage in the Process—The Kitchen, the Stomach of the House—Primitive Nutrition Simple and Private—Increase of Complexity and Co-ordination—From Bone to Banquet—Physiological Needs—Waste and Supply—Age and Occupation—Racial Dietetics—Theories and Facts—Some of Our Errors—Control of Nutrition and its Consequences.

WE have found that most of the industries that began as household functions have in the natural course of their evolution and development grown out from the house into larger place in the world than the house afforded. Of the functions that remain in the household the leading two are nutrition and excretion,—the feeding and cleaning processes of humanity. Nutrition is, at present, of the larger importance. More time and space are allotted to it; more energy spent in its fulfilment; more consideration devoted to it. The cooking school has come. The cleaning school is still to come.

In studying this great function of humanity's nutri-

tion, as in our study of the elaborate structure of the home and its furniture, we are led again to see the intimate and unbroken connection between the soul of man and his body, the body of man and his house, the house of man and the earth it comes from. In touching upon the subject of nutrition, we touch upon the process of living—neither more nor less. Nutrition, if I may stretch the word for a moment to cover excretion as well,—and indeed the latter is but a sub-process, a consequence of the former—nutrition in its largest sense is that stream of materials in motion, in which we live. Our apparently solid bodies are but processions of materials. While the procession passes a given point we live in it—that is all. While the necessary constituents of our bodies appear in due season, order, and proportion, we live; if they fail to appear, we die. Like a spot of sunlight on a river is the apparent fixedness of our life. Do not imagine that we are permanent objects, through which dinners may or may not pass. The dinners are the fixed consideration and we the transient one. It is a matter of indifference to the dinner who eats it, or if it is eaten at all,—a matter of terrible importance to us.

There are in the world certain elements. When some of them are combined in a certain proportion, lo! there is standing ground for Life, and Life stands thereon proudly. But his elevation is like that of a clown on a rolling barrel;—if he does not keep it going, down he comes!

See with what literal exactness the body of a man is like "a body of men." Some men organized and actuated by a common purpose, form a body and can act as such, while they so remain together. Some bread and cheese, meat and vegetables and fruit, organized

and actuated by a common purpose, form a body and can act as such while they so remain together. The soul lives in the body of the individual as the "common purpose" lives in the body of men.

As we value our corporate existence, we must preserve its constituents, else we discorporate speedily. It is a "low" function, this of nutrition, but one of considerable importance. Until it is duly performed, no other business of any consequence can be attended to. And as the health and virtue of each individual member of our body depends on its being properly nourished, so does our health and virtue depend on our being properly nourished. And as we, though having enough to eat, are not healthy unless all our members are properly nourished, so society, though rich as a whole, is not healthy unless all of its members are properly nourished.

There is no break in our social economy from stomach to kitchen and from kitchen to market. The process is all one in constantly enlarging degree. We are considering that stage of the process of nutrition which is at present covered by household economics. Look first at the close connection between the kitchen and the stomach. "There is many a slip 'twixt the cup and the lip," says the proverb; but there should be none. Nutrition covers every step of the way from phosphates and carbons and nitrogens in the earth's substance to the springy muscles and clear brain which form our immediate engine.

Between them and us comes first the nutrition of the vegetable. We can only eat what has already once been eaten—or twice, when it comes to meat. Then the manifold processes of laying hold on our meat and vegetables,—all these are steps in nutrition. The old

recipe which begins, "First catch your hare," began reasonably enough. All that goes to secure and preserve our supplies is part of the process. Then we who are human have instituted another nutritive process, more complex than any known to the animals below us—the preparation of food. This and its attendant machinery is *la cuisine*—the kitchen. After the cup has reached the lip, we can do no better than the animals (for that matter, we cannot always do as well). But to the whole nutritive process before the lip is reached we can apply intelligence and promote development.

The value of our advanced system of nutrition to the individual is that by having the welcome dinner bell summon him to perfectly prepared nutrition, he is thereby enabled to use all his highly trained capacity in some higher business than that of getting his own dinner.

When the little cells were all stomachs, there was no organism. When the stomach took its place in the organism, numbers of cells, sure of their dinner, could contentedly specialize into bones and brains and other useful articles ; all of which helped to get dinner for the stomach. Society, setting apart the service of some to obtain and prepare nutrition for all, effects a similar advance on a large scale. But for the dinner-table and its intelligent provision, we should still all be engaged in the business of getting our own dinners,—an occupation both absorbing and degrading (as getting or helping to get the dinners of the community is not).

The subtlety and perfection of our nutritive processes require the special service of a specialized functionary ; hence THE COOK, as essential to social progress as The Carpenter, The Weaver, or The Smith.

Cooked food, served food,—saves energy to the body; raw material, like grass, requires a most elaborate digestive system to make it into meat. It takes less machinery to digest the meat, and even less is needed if we make the meat into soup. Note here a relation between food and organism; where food is simple, plenty, and easy to get, the development of the organism is all inside;—an elaborate digestive system, a clumsy and simple muscular system.

Where food is various, scarce, and hard to get, the development is the other way;—an elaborate external organism to get food with, and a simpler one to digest it.

It is in this connection that the importance of nutrition to life shows clearly. On the primary processes of nutrition all development of life is conditioned. Mere digestion is the only function of the primordial cell. He can take care of the food if it comes his way, that is all. A simple organ was he, with one function. The union of these cells in the second degree of life,—organism,—is commensurate with the development of the secondary processes of nutrition,—the various methods of obtaining food. In all the infinite differentiation of organic forms, the secondary nutritive characteristics are the principal distinctions. Reproductive processes modify the creature somewhat; defensive processes somewhat also; but the secondary nutritive processes most of all. And the reason is plain. Reproduction and defence are only occasional demands; nutrition is constant. Creatures mate and fight occasionally. They eat continually.

The acts which the organism has to perform to get its food are the main factors in its development. As the food supply varies the animals vary, so that a nat-

uralist could tell us exactly what kind of creatures lived in a place if he knew what the food supply was.

Let me mention, merely as a few indicative instances, cattle, modified by abundant supplies of one kind of food found on vast plains; sheep, modified by the kind of ground their grass grows on; and, for an extreme case of specialization, that Javanese monkey with the one attenuated claw-like finger,—a finger developed by his constant search for a fine fat grub of that island, which grub bores holes in trees.

This may be followed as extensively as we like. I wish now merely to indicate the importance of secondary nutritive processes in evolution. Animal life, we see, is in its first stage a helpless dependent on the food supply; and in the second an active pursuer of the food supply, but still the mere sport and plaything of that mighty but capricious stream. Should the food supply of a region change, the animal of that region must change too, modifying and remodifying his poor organism in a perpetual effort to keep up with his dinner.

But this is not the end of the story. There exists a third degree of life—a tertiary process of nutrition. The cells, mere organs, united to form organisms. The organisms united also in organization, when the fulness of time is come,—and we have HUMANITY.

Humanity, in its least existence, represents organization, however low; and with that organization has developed the third process in nutrition—the production of food. Man can digest food,—so can an amœba. He can pluck it off a tree,—so can the ape. He can catch it and kill it,—so can the tiger. He can produce food from year to year, regularly, sufficiently, of what sort and variety and proportion he chooses. So can hardly another living thing. Bees and ants, squirrels and

field mice being almost the only inhabitants of the animal world owning storehouses of food. Man does this not by virtue of being vertebrate or biped, but by virtue of living in organic relation,—being part of the social organism.

Agriculture and commerce (its child) depend absolutely on our social interrelation. They are never found without it. These are familiar facts, I know, but study a little more deeply into their relation. Facts have always been with us;—to perceive their relation is the work of the scientist. Look at what these three steps mean. Here is the food supply;—a number of constituents tumbling calmly about with climatic and geographic and geologic changes. Here is the cell waiting for it to come along. If it does come he can eat. If it does not come he cannot eat, and therefore dies. Now behold the organism. He does not have to wait for food to come his way—he is up and after it; up trees, under water, into the ground, and spending his energy, as fast as he gets any, in speed to run with, traps to catch with, bait to lure with, weapons to kill with; a ceaseless and frantic effort to catch up with his food supply. He never could go any further, for it took all his food to get his strength and all his strength to get his food. All this is "the struggle for existence."

Now comes man. He does not have to wait for food, nor to run after food. He can make food grow. He has caught up with his food supply. He has conquered in the struggle for existence. Hereafter, his progress is no longer a struggle, but a growth. This does not mean that he need not labor. The amœba did not labor—he loafed. The existence of the amœba is an inferior existence. Labor is a human function; a social function,—and as such took its rise in the

tertiary process of nutrition—the effort required to produce food. But look at the difference between the exertion of a man to procure food and the exertion of a beast to procure it. The lower creature can in no way modify or control his food ; he must, on the contrary, be modified and controlled by it. The shape of his body, the quality of his brain, the activity of both, are conditioned upon so much grass or fruit or fleeing prey. His food makes him, and there he is—a product, not a producer. Man is equally modified by his food and the exertion required to get it, but he can choose that food and dictate that exertion. He can make the food that makes him; he can modify himself ! Hence all that lies in our word Progress.

All the varied activities of man, which have made him what he is, are primarily traceable to his effort to make a living ; and that is literally what man does. He *makes his living*. In our courses in History, Economics, and Ethics, we have learned, or think we have, the kind of living he has made.

Man now, as a race, eats food universally produced, distributed, prepared ; in his ever growing third process of nutrition he has learned to govern and adjust the food supply so that, while our means of production, transportation, and distribution endure, man cannot die from off the earth until all of him dies ; and he lives strong in the powers and faculties which his self-governed food supply produces.

In this immense range of the human nutritive process, which takes from innumerable world-divided places the many varying constituents of human food, carries them anywhere on the earth's surface, and serves them on a million plates for a million mouths to eat,—processes which involve the co-ordinate activities

of a million people,—our field of study, household nutrition, is but a simple stage. None the less is it a vitally important one. For the world in general, food is prepared and eaten at home; and no matter how many farmers and butchers and sailors and teamsters and grocers have conspired to provide us with good food, the one cook in our kitchen may vitiate the product in an hour.

Between the wide world and our mouths is a long way; and the kitchen is much closer to our mouths than the world is. As our mouths perform a certain part of the digestive process, preparing the food for the stomach, so does the kitchen prepare it for our mouths. And in no part of all the long journey is there room for more knowledge or more skill, and at present less evidence of either knowledge or skill!

A clam is a simpler organism than we are; but because our teeth ache we do not wish to be a clam. High organization is complex, not simple; but it may work with perfect ease and smoothness none the less. And so will our household organization work when we understand it.

The early savage with his solitary bone lived more simply than we live; but our banquet, with all its abuses, is part of a higher living. We must learn to separate abuses from their sustaining causes and discriminate between them.

While the kitchen is the stomach of the house, it is as essential to have it rightly understood and managed as it is essential to have the stomach so cared for. Cooking is preliminary digestion. Primitive household nutrition was like all other primitive processes, simple and individual. It has grown complex and social, as we have—not only as a pleasing coincidence, but as an

essential cause and consequence. The popular cry for simpler living is a mistake—in so far as it is a cry for cruder living. We cannot go backward. But what we do need in our living is a smoother specialization.

Here then we face a series of physiological needs summed up in the word *food*. I spare you, as indeed I must, any attempt to give you here the composition of the human body with all that its complex structure demands. The full grown adult takes in each day through mouth and lungs about eight and a half pounds of dry food and the air necessary for breathing purposes. Through every pore of the skin, the lungs, the kidneys, the lower intestines, there is a corresponding waste; and supply and waste together in the course of a year amount to about 3,000 pounds, or one and a half tons! Now, the food taken into the human body is made up, as the pages of your larger Physiology and Anatomy will tell you, of sixteen different elements. Oxygen is the only one of these that is mainly used in its natural state. Water, which makes considerably over two thirds of the body, enters largely into the composition of food, from the drinks through the whole gamut of fruits, of succulent vegetables, eggs, fish, cheese, the cereals, and even the fats. The demand for food includes fat, sugar, starch, nitrogenous foods, found chiefly in flesh, but also in a few important vegetables,—and last, the salts, which belong alike to vegetable and animal food,—meat, fish, and potatoes containing phosphorus, lime, and magnesia. Potash is given us in meat, fish, milk, vegetables, and fruits. Iron abounds in flesh and vegetables, and sulphur enters into albumen, casein, and fibrine.

The simplest division of food is into flesh formers and heat producers; the former being as often called nitro-

genous food, proteids or albumenoids, the latter heat-giving or carbonaceous foods. For a healthy body both are essential; but climate and constitution will always affect the amounts of each required. In a keen and long continued winter, the most condensed forms of carbonaceous food will be needed. In a summer, a small portion of nitrogenous food will nourish muscle, and a large amount of fruit and vegetables are indicated.

Muscle being the first consideration in building up a healthy body, the food provider to this end must at once study the values of different foods. Save for the little manual it was my pleasant task to make in 1879, we have, outside of text-books on physiology and cook-books pure and simple, nothing until very recently that met the need of the food provider for plain statement of what was wanted. In 1885, the American Public Health Association received from Mr. Henry Loomb, of Rochester, the offer of a prize for the best monograph on "Practical, Sanitary, and Economical Cooking." Of the seventy essays that in time came in, but one fully met the requirements, and remains the best short treatise on this subject, under the same title as that of the offer, *Practical, Sanitary, and Economical Cooking*.

To this admirable work has been added that of Mrs. Ellen H. Richards, of the Massachusetts Institute of Technology, who has made and overseen the making of a series of dietaries for all ages and various conditions of men.

All this knowledge, brought within the compass of ample charts, will be part of any future work to be done in a course of Household Economics. Age and occupation naturally determine the application of each dietary, but from the baby well or sick, on through

every phase of life, these charts will give you with unerring accuracy food values, just so far as our present best knowledge determines them. Science does not pretend—indeed knows better than—to meddle with racial instincts. A study of national dishes is, in this light, a very fascinating one. The lamp of life for Greenland has to have a very literal supply, and the Esquimaux with his lump of raw blubber consumes the only food that renders his continued existence in his latitude possible.

For the other extreme of temperature, the East Indies, China, Africa, and part of the West Indies, we find rice the universal food. Starch and sugar serve as flesh formers, the starch of the rice turning to sugar under the action of the saliva,—with the addition of a little *ghee*, or melted butter, or olive oil used by the West Indians,—these giving all the essential elements. In a latitude a trifle more northern, the same rice is mingled with bits of fish or meat, as in the Turkish *pilau*, to which mutton or poultry is added. The Arab has also an occasional *pilau* of mutton, but subsists chiefly on a handful of dates and parched wheat or maize for his meal, with a draught of mare's or camel's milk. The Turkish burden bearer adds to the same regimen cucumbers eaten as we eat apples, picks up his 200-pound bag of coffee as one picks up a pebble, and, like the Arab, he is a model of muscular power, endurance, and agility.

Turning to Southern Europe, macaroni replaces rice, and is the most condensed form in which wheat can appear; olive oil and cheese, as well as tomatoes, adding the necessary elements. Spain has the *olla podrida*, a dish which has as chief ingredient the garbanzo or field pea. It is a rich stew of fowls and bacon, red

peppers, and pease. Red pepper enters into the composition of most dishes in tropical countries, and there is good reason for it. Long continued intense heat weakens the action of the liver and lessens the supply of bile. Red pepper has the quality, which black or white pepper has not, of stimulating the liver and so aiding digestion. Here is the reason then of the curry and the *olla*, nature having provided in capsicum just that fillip for the liver which serves its turn at times in more northern climates.

In France, the *pot au feu*, or soup pot, simmers in every peasant and middle class home, and is not despised in richer ones. In this a little beef is cooked so judiciously as to flavor a large mass of vegetables and broth, and this, served with salad and oil and bread, forms a meal making the utmost of every constituent offered.

Norway, Sweden, and Russia naturally tend more and more to the oily diet of the Esquimaux. In short, national dietaries from that of the ancient Jews down, give, as we read them, a new understanding of the part food plays in supplementing climatic deficiencies and forming national character.

What our individual constitution needs we may all learn in time. The laborer requires one form, the growing child another, the man or woman whose labor is chiefly intellectual a third form. The excess or the lack of any necessary element means disease, and for such condition we are already responsible.

Weak and vitiated blood may be an inheritance, but scientific feeding has fully demonstrated its power to avert or alter effects. Scrofula and all weaknesses and unwholesomenesses change face under the rational methods of scientific treatment,—and the best physicians now rely largely on natural methods for cure.

It is a most unfortunate baby whose mother knows nothing of the laws of food. I have seen a three months baby swallowing its portion of coffee or tea, and the small German at six months taking its little mug of lager beer as philosophically as its serious-faced father. Fevers and rashes are the first result; nerves and a shocking temper the second,—and the round-eyed mother wonders where the child got its dreadful disposition. The physician who keeps pace with modern dietetics strikes out meat altogether until the child is at least seven years old; and advises its use only once a day after that. Sir Henry Thompson, one of the most distinguished of English physicians, and noted as well for his popularity as a diner out and giver of dinners, writes strenuously in his book on *Food and Feeding* against the prevailing excessive use of meat, especially for children.

Nitrogenous vegetables and fruit advantageously take the place of meat for all. Mathieu-Williams, in his *Chemistry of Cookery*, takes the same ground as does Sir Henry Thompson, believing, as do many thoughtful physicians on either side of the Atlantic, that as we advance in civilization the use of meat will lessen more and more.

So widely is this belief spreading in England that London has now over a dozen well kept vegetarian restaurants. In one of these which I have frequented, may be seen swarms of students and clerks from Whitehall (the War Office) and the offices of the London County Council. Vegetarianism is generally understood to exclude all mineral products, but this is an error. Milk, eggs, butter, and cheese are all used freely in these restaurants, and fruit in profusion.

Probably the best and most scientific presentation of

the claims of vegetarianism is that contained in a little book by Dr. Anna Kingsford. *The Perfect Way in Diet.* It is the expansion of a thesis prepared for her graduation from the *École de Medicine*, of Paris, and which was so brilliant a piece of work that on its publication it was crowned by the French Academy, the highest distinction that a book can receive in France. We have not time now to consider its argument, beyond pointing out that whoever has once watched the unloading of a stock car, and seen the wretched animals parched with thirst and quivering from the confinement of the long journey and from fear as they are driven to the slaughter houses, such a one will realize that the flesh through which such fevered blood has coursed is hardly wholesome food for man. And if we still demand it three times or even once a day, it is at least worth while to know whatever scientific reasons exist against it, and to meditate on their significance.

For this country, vegetarianism took on its most radical and least desirable form,—the Grahamites renouncing most things but bran bread and dried apples. I have seen Grahamite pies composed of Graham flour and water for crust and sugarless, spiceless stewed dried apples for contents. Salt, butter, eggs, in short every relishable thing, was forbidden, and naturally, ordinary flesh and blood rebelled. But the new order invites rather than repels, and the student especially finds that working power increases and that the brain is clearer for a vegetarian diet,—two good reasons for experimenting with it at least.

The old belief of dieticians, "Without phosphorus no thinking," has passed away, minute experiment having demonstrated that the amount of phosphorus passing through the system bears no relation to the in-

tensity or extensiveness of thought. "A captive lion," writes Dr. Chambers, one of the most distinguished of English authorities on diet; "a leopard or hare which can have wonderfully little to think about, assimilates and parts with a greater quantity of phosphorus than a professor of chemistry working hard in his laboratory; while a beaver, who always seems to be contriving something, excretes so little phosphorus that chemical analysis cannot detect it."

Fish, eggs, and oysters have been ordered for students because rich in phosphorus. The real reason is that all are easily digested, and the student who, unless he goes in for athletics, leads a rather inactive life as to his muscles, does not need the heavy food of the laborer. Frequent small supplies of good and easily digested food are what is needed for all brain workers, and the students' dietaries now in use in Chicago University and other institutions are made on this plan.

We are far more apt to eat too much than too little, and often in turn a heavy meal may be so badly planned as to mean by no means enough real nourishment. All this we shall gradually learn in detail, and in good time food principles will be taught as naturally and as widely as the multiplication table, and every child know understandingly the constituents of food and what is needed at every stage of life. And if this seems impossible, let me add that I have seen it done, the children taking it in as unconsciously and as permanently as the children of one of our famous anatomists got to know every bone in the body from playing with bones and manikins.

It must by this time be quite evident that the building of a beautiful human body is something in great degree in our own hands. Raisers of cattle and of

poultry have long known that proper feeding determined the nature of the product. Cows are fed in one way for milk and in another for cream; hens in one way for eggs and in quite another way for fattening for market. But the same man who studies every fresh fact he can obtain bearing on methods of feeding, and who experiments carefully on his own account in feeding his stock, groans with dyspepsia and pooh-poohs any study of human dietaries. Yet till these are studies, not in the fussy method of invalid or crank, but as part of the necessary, quietly assimilated knowledge that makes all genuine culture, we shall fall short of the thing we might have been.

The ancient Greek had little chemical knowledge, but he had intuition and superb common sense. The yearly games were prepared for by long courses of rigorous diet, precisely as our modern athlete trains,—and baths and rubbings and all methods of strengthening were then far better and more general than ours.

In the Elmira Reformatory many remarkable experiments in this line have been tried on young criminals, whose ill-fed, ill-nurtured bodies have seemed to receive new souls and to take on forms of health and beauty one would have declared impossible to them. Mal-nutrition is at the bottom of the defects which Dr. Sargent notes as marking the figures of American college men and college women; these defects being summed up in the composite statue of each shown at the World's Fair in Chicago. Underfed or overfed, the result is in either case defective lines and destruction of the beauty which ought to be a national characteristic.

Realize, then, before we pass on to the second part of our subject,—the chemical properties of foods,—

what it is that we are doing, and how absolutely what we are doing takes hold of the very springs of life. Believe it, for without belief it has no real place with us. Let each one of us who would see it grow,—who know the body as the temple of the Holy Ghost, and who would have that temple fair and fine and firm in every line and in every innermost recess,—study these laws of food, and know that in studying them we build not only for ourselves, but also for our children and our children's children.

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CHAPTER IX.

FOOD AND ITS PREPARATION.

Chemical Properties of Foods—Animal and Vegetable Foods; Mineral Constituents—Nutritive Values—Our Food Supply "From the Ground Up"—Preparatory Processes, General and Special—Diets—Vegetarianism—The Cooking Animal—Cooking as an Art, a Science, a Handicraft, a Profession—Apparatus and Methods—Primitive; Ancient; Modern; Local—Our Advance in this Art as Compared with Others—Dietaries for Infancy, Childhood, Youth, Maturity, Age, and for the Sick—Markets and Marketing—Adulteration—Supervision of Foods—Civilized Living.

WHILE the question of the actual chemical properties of foods is under steady investigation, various German chemists especially having devoted their lives to it, there are certain foundation facts that remain practically unaltered. Chemistry itself progresses so swiftly that each decade wipes out almost absolutely the work of the previous one, and in the words of Josiah Cooke, the famous professor of chemistry at Harvard, to his students, "Except for historic purposes, look at no treatise written over ten years ago." Fortunately for our purpose, it is names rather than facts that have changed. The older works on food and its composition may still be followed, though the student must always bear in mind the changes in terms and measurements. But for our

purpose, we have simply to keep in mind that of the various elements shown by chemistry to exist in nature, only a few enter into the composition of the human body, the first four, carbon, hydrogen, oxygen, and nitrogen being in far larger quantity than any of the others. These are followed in always diminishing quantity by sulphur, phosphor, chlorine, sodium, potassium, calcium, magnesium, iron, fluorine, silicon, manganese, aluminium, and copper,—this last being the merest trace or suggestion.

Food, then, must contain all these elements, since in the act of living we perpetually destroy and must perpetually renew. But as simple elements, they are useless; not only must they combine, but the combination must be formed by the agency of a living organism, taking form as an organic product. These take the form of elementary products, and by their analysis we come to alimentary principles, animal and vegetable foods, and their mineral constituents falling into line and presenting five groups whose arrangement has given infinite thought to the chemist. We cannot divide food simply into food and drink, since the latter, if milk, for instance, may be more really rich in nourishment than are many solid forms. Nitrogen is a large part of the composition of the animal body, but we cannot draw it from the air, of which it makes four fifths, as we do our oxygen, but must take it always in a state of combination. Albumen, casein, fibrine, and half a dozen lesser combinations, contain it in full measure for our needs; all being found in meats, fish, eggs, milk and its products, wheat and other cereals, and many of the vegetables. These make our first group, but as each is more or less dependent upon the other, we will take them in the natural order:

1. Water.
2. Nitrogenous principles, called now, more often, proteids.
3. Hydrocarbons, or fats, otherwise calorics.
4. Carbohydrates, as starch, sugar, gum.
5. Inorganic materials, salt, etc.

There are a few principles which do not fall strictly within any of these groups, alcohol, vegetable acids, and pectin or vegetable jelly being the chief. But for all ordinary purposes these five are the divisions it is our business to understand. The hydrocarbons, or fats, consist of carbon and hydrogen in combination with only a very small portion of oxygen. The carbohydrates, or sugars, are carbon, oxygen, and hydrogen, the last two always in such exact proportion to each other as to form water, and both fats and carbohydrates coming under the head of non-nitrogenous principles. Water leads, because our bodies when fully grown are made up of about two thirds of water, and the food we eat contains from one to ninety-five per cent. of it.

The proteids or albumens are familiar to us in the lean of meat, in eggs, and in cheese, the amount of this principle varying greatly. The lean of meat has from 15 to 21 per cent. ; eggs, in both white and yolk, 12.5 per cent. ; fresh cow's milk, 3.4 per cent. ; cheese, 25 to 30 ; dried codfish, 30 ; wheat flour, 10 to 12 ; peas, beans, and lentils, 22.85 to 27.7 per cent.

Fats or hydrocarbons we have from both animal and vegetable kingdoms, the cereals, like corn and oats, containing from 4 to 7 per cent. of fat.

The carbohydrates are chiefly of a vegetable nature, the housekeepers knowing them as starches and sugars, —under the starches being included all the starches of

grains and seeds, Iceland moss, gums and dextrin. Salts, as calcium phosphate, or lime, and common salt, give hardness to the bones; but both these and water can be dismissed. The remaining three are known under other names; the proteids as "flesh foods," the fats as "heat foods," and the carbohydrates as "work foods." And fight as the various schools may over details, these divisions remain the most expressive of real facts. We are as bodies nearly one half muscle, and this muscle is one fifth proteid, and the nitrogen of this proteid must be furnished by proteid again, because neither fats nor carbohydrates contain it. Every bill of fare, then, must provide for it; the body, even when idle, cannot do without it.

Two famous chemists, Vóit and Pettenkofer of Munich, have experimented so faithfully and minutely that they have accounted for every particle of food that passed through the body of a man. They have noted also how much of his own body wasted away when he ate nothing. On this basis they constructed "standard dietaries," that is to say tables showing the average amount of each of the chief food principles that are required to keep an average muscle worker in good condition when doing average work.

In England, much the same conclusions were reached; but in that country no attention had been paid to the matter till in 1862 and 1863, starvation threatened among the cotton spinners in Lancashire and Cheshire. Dr. Edward Smith, whose book on *Foods* is one of the most compact and valuable in existence, was commissioned by the British Government to examine into the dietetic needs of the operatives, and in a report published in 1863, he gives tables showing the food consumed per week by 634 families, classifying the amount

of the different food principles. It was determined then that the lowest amount of food on which an unemployed man can keep off starvation is 35 ounces of good bread and enough wholesome water to satisfy thirst daily.

Coming now to the actual amounts of food principles required for a workingman of average size, we have :

Proteids.	Fats.	Carbohydrates.
118 grammes	56 grammes	500 grammes.

One ounce contains 28.34 grammes, and the word has replaced all old-fashioned methods of averaging by grains, ounces, and pounds. So it must be carried firmly in your minds until its use becomes second nature. Most of these proteids must come from the animal kingdom, and if represented by fresh beef, 230 grammes would be required,—this consisting of 18 grammes of bone and tendon, 21 of fat, and 191 of lean. In the city of Berlin the daily average consumption of meat is 135 grammes per capita; in New York, 226 grammes; in London, 274; but the last is too high, the well-to-do eating much more meat than their bodies need, and paying the penalty in gout, rheumatism, and kidney disease.

The German soldier in garrison is allowed 120 grammes of proteids, 56 of fats, 500 of carbohydrates. Professor Atwater, one of our highest authorities on food, allows 150 grammes of proteids, 150 of fats, 500 of carbohydrates, for an American at hard work, as we work faster and our climate is more exacting than that of Europe. Compare this with the ordinary food of a poor North German family, a man, wife, and child five years old, whose dietary Professor Boehm recorded for a week, and which consisted of: Potatoes, 41 lbs.;

rye flour, 25 lbs.; meat 1¾ lbs.; rice, 5 lbs.; rye bread, 12 lbs., and a very little milk. Translating this into food principles, we have for the three persons per day:

Proteids.	Fats.	Carbohydrates.
175.5 gms.	41 gms.	12.51 gms.

This is not only very insufficient in amount, but also absolutely wrong in proportion. And at this point I may add a word as to potatoes for food. Long ago William Cobbett denounced the potato as a staple article of food. That it is a cheap food is a popular delusion, 25 lbs. of potatoes being required to supply the amount of carbon contained in 1 lb. of bread, while 35 lbs. are needed to furnish the nitrogen in 1 lb. of bread. One pound of oat-meal is worth six pounds of potatoes, containing as it does 73 per cent. of carbon, as against the 17 per cent. of carbon in potatoes.

Mathieu Williams, whose book, *The Chemistry of Cookery*, is invaluable to every investigator, says of the potato:

"The bulk that has to be eaten, and is eaten, in order to sustain life, converts the potato feeder into a mere assimilating machine during a large part of the day, and renders him unfit for any kind of vigorous mental or bodily exertion. If I were the autocratic Czar of Ireland, my first step towards the regeneration of the Irish people would be the introduction, acclimatizing and dissemination of the Colorado beetle, in order to produce a complete and permanent potato famine. The effect of potato feeding may be studied by watching the work of a potato fed Irish mower or reaper who comes across to work upon an English farm where the harvestmen are fed in the farmhouse and the supply of beer is not excessive. The improvement of his working powers after two or three weeks of English feeding is comparable to that of a horse when fed upon corn, beans, and hay, after feeding for a year on grass only."

Summing up, then, as to nutritive values, we know that we must call proteids, otherwise nitrogenous or albuminous foods, whether drawn from the animal or vegetable kingdom, as principles absolutely essential to human life. To do their work in the best way, they must be taken in easily digestible forms and be easily assimilated by the organism. Their relative dietetic value is therefore determined by their digestibility. If of two foods of like composition one is more easily digested than the other, it is for this reason a more valuable food stuff, and this value depends not only upon its intrinsic quality, that is to say, whether it comes from the animal or vegetable kingdom with its chemical peculiarities, but upon how it has been prepared for digestion.

To secure the most appetizing result is one province of cooking, and this matter of flavor is quite apart from the working constituents of food.

"A pinch of pepper, a cup of coffee, a fine juicy strawberry,—what of these?" writes Mrs. Abel in her admirable treatise on *Practical Sanitary and Economic Cooking*, which received the Lomb prize from the American Public Health Association. "They may contain all five of the food principles, but who cares for the proteid action, or carbohydrate effect of his cup of good coffee at breakfast, or what interest for us has the heating effect of the volatile oil to which the strawberry owes a part of its delicious taste?"

Flavor, savoriness, are all aids to digestion, but this means something very different from our American theory of black pepper besprinkling everything. The use of sweet herbs, bay leaf, parsley, spices, are regarded as a foreign fashion, and the American who says: "Give me good plain cooking!" has his national

portion of dyspepsia in large part because of the lack of intelligent use of these things;—what the German calls "Genussmittel"—pleasure-giving things. The plainest, simplest, food by their use is made enjoyable, and this is far removed from the heavy over-seasoning of what we know as "made dishes."

Only the fringes of this phase can be touched upon here, but all of us may turn to Mathieu Williams's delightful book, *The Chemistry of Cookery*, or to Mrs. Abel's equally valuable monograph, including also the *Rumford Kitchen Leaflets*, and study out for ourselves the things we could easily have learned in childhood, since our cooking schools now teach food principles and proportions, and food charts are now provided in all of them. The knowledge should be so thoroughly learned as to become an instinct, and to meet the varying needs of a large family without this knowledge is merely fumbling in the dark.

All this brings us naturally to the fact which is a portion of our evolution, and a part of the definition we are at last compelled to accept.

In the many attempts which have been made to differentiate man from the other animals by one telling phrase, that which describes him as "the cooking animal" is as good as any. He is distinctively that; and cooking is a process as essential as it is distinctive. It is essential to our humanness in that by minifying the difficulties of digestion it sets free more energy to add to our superior powers, and that in artfully mingling and supplying the needed elements, it increases our length and strength of life.

Human life, modern human life, is complex. Grass maintains the cow, but the cow is not of a sprightly intelligence, neither is the sheep. A handful of dates

feeds the Arab, a cucumber the Turkish porter, a strip of raw blubber the Esquimau ; but the needs of civilization call for other faculties than are possessed by these. The simply fed Arab is healthy—so is the cow. The Turkish porter is strong—so is the horse. The Esquimau has no dyspepsia that I know of, neither has he anything to boast of in either politics or religion. Civilized life is full of changeful demands on the human system ; sudden drains and strains occur ; complexities of wear and tear, varying periods of physical and mental outlay, which have to be met by varying supplies of nutrition. Civilized life is none the less "natural" for being thus complex. It is a great mistake to suppose nature is always simple. She stops at nothing in intricacy, and we need never fear passing the bounds of "natural" living, so long as we keep well. But the health of a modern man is not to be maintained by the regimen suitable for an oyster, or a goat, or even a pig. Simplicity is not his main demand ; nor elaborate and strange articles, or a coarse abundance. He needs an intelligent provision, a flexible and variable food supply, presenting always the essential elements, but varying in combination as his needs require.

The service of cooking in reducing effort for the alimentary machinery is also perfectly natural. Nature always follows the line of least resistance, and her labor-saving inventions surpass Connecticut's. One of the main lines of advance in nature is towards the saving of energy, and the life of man, being always within nature, does not herein depart from it. But it is no saving of energy for the human race to have more spent in the cooking of the food than there is saved in the eating of the cooked food. Our present

system, whereby six hours of working time are spent in handling food by half the adult population, is not at all justified by the very inferior product of all this crude labor. You may think this is a high estimate, but a preceding lecture has proven that it is not.

The reason that cooking so fails of its purpose, is that its practice is far below the rank of other human industries, and therefore oftener more of a hindrance than a help. If man's clothes were made as badly as his bread is, or man's houses constructed with as little success as his dinners, there would be the same complaint raised in regard to tailoring and building as is now heard over cooking, and numbers of shortsighted reformers would clamor for a return to the simpler living of the coat of skins and the hollow tree. It is a disgraceful position for humanity to turn tail in the great march forward; to return to the kindergarten because the university is too complex; to "want to go home" because the journey is long and hard. We wish to answer questions, not beg them; to conquer our difficulties, not yearn for savagery because civilization is more laborious.

Cooking holds varied place in relation to humanity. In the large sociologic sense, it is simply a nutritive function of the race, one of our distinguishing tertiary processes, as natural and necessary as mastication on the one hand or transportation on the other. But in the more common way of looking at life, it is to us, among our other human uses, an Art, a Science, a Handicraft, and a Professson. These essentially and always. Superficially, it is now two things more: a Trade and a Service.

That it is a Trade, under our existing system, brings into play the enormous element of adulteration,—of

which I shall speak later ; that preposterous process by which a reasonable race deliberately weakens and poisons its own food !

That it is a Service, leaves the pursuance of this Art, Science, Craft, and Profession in the hands of the least capable people among us, a piece of imbecility under which we suffer extensively. Apart from these two gross abuses, which are by no means permanent, let us look at the four-faced function more seriously. It is a profession or calling, because its right performance requires the specialization of individuals to that service. It cannot be rightly pursued by a person who has other things to do ; note that from the present standing of household industry ! To say that our women should each and all be trained cooks because humanity needs trained cooks, is like demanding that they should be trained physicians, architects, etc. The Cook is a needed functionary all by himself, or herself.

It is a Craft, because much manual dexterity is required of the trained cook, a thing not called for by the profession of the law, the church, or medicine. Cooking has at once the dignity of a profession from its close relation to deep human needs ; and the usefulness of a craft in the skill used in daily and unfamiliar practice.

It is a Science, because it involves a knowledge of laws of its own, a science as much as medicine, and being all to health that medicine means to disease. And as the science of medicine involves on the one hand knowledge of the body to be treated, and on the other the substances used in treating it, so does the science of food involve the same knowledge,—and need for its much more constant use. When our cooks are as wise as our physicians, our physicians may all turn cooks. Their old occupation will be gone.

What the skilled physician does after we are sick, the skilled cook does before; puts into our bodies something to help them work rightly. The work of the physician as compared with that of the cook is the work of a mere tinker, cobbler, darner, and mender, compared to the work of the smith and the shoemaker, the composer and constructor of any kind. The cook *makes*, the physician mends. But alas! the cook makes so ill, that all the physician's mending is of no avail,—he makes mischief daily, yes, tri-daily, mischief often past finding out. And what wonder when we choose for arbiters of our physical well-being the lowest and least educated minds among us.

Still further, cooking is an Art. This the other sciences and professions are not. It is a craft, remember, in that it requires manual dexterity; a profession, in that it requires highly trained service; a science, in that it involves wide, deep, and exact knowledge; and beyond all these it is an Art—the highest form of human activity—in that it is open to direct inspiration of genius; is a form of expression. To the highly organized cook, the cook "born, not made," there are primal flavors like the primal colors, with all their infinite shadings and blendings, harmonies, and contrasts; there are dominant tastes like the dominant chord in music, with all subtle variations and expansions; there are moods to be expressed, schemes to be carried out, all as legitimate and elevating and noble and useful as are the other arts.

A menu has even been made the vehicle for a declaration of love, as witness that famous one of the French *chef* in *Pendennis*, which Thackeray is said to have taken from life.

"I declared myself to her," said Alcide, laying his hand on his heart, "in a manner which was as novel as I am charmed to think it was agreeable. Where cannot love penetrate, respectable Madame Fribsbi? Cupid is the father of invention! I inquired of the domestics what were the *plats* of which Mademoiselle partook with most pleasure, and built up my little battery accordingly. On a day when her parents had gone to dine in the world (and I am grieved to say that a *grossier* dinner at a restaurant, on the boulevard, or in the Palais Royal, seemed to form the delights of these unrefined persons), the charming Miss entertained some comrades of the pension; and I advised myself to send up a little repast suitable to delicate young palates. Her lovely name is Blanche. The veil of the maiden is white; the wreath of roses which she wears is white. I determined that my dinner should be as spotless as the snow. At her accustomed hour, and instead of the rude *gigot à l'eau* which was ordinarily served at her too simple table, I sent her up a little *potage à la reine—à la Reine Blanche* I called it,—as white as her own tint—and confectioned with the most fragrant cream and almonds. I then offered up at her shrine a *filet de merlan à l'Agnes* and a delicate *plat* which I have designated as *Eperlan à la Sainte Thérèse*, and of which my charming Miss partook with pleasure. I followed this by two little *entrées* of sweetbread and chicken; and the only brown thing which I permitted myself in the entertainment was a little roast of lamb, which I laid in a meadow of spinaches, surrounded with croustillons, representing sheep, and ornamented with daisies and other savage flowers. After this came my second service: a pudding *à la Reine Elizabeth* (who, Madame Fribsbi knows, was a maiden princess); a dish of opal colored plover's eggs, which I called *Nid de tourtereaux à la Roucoule*, placing in the midst of them two of those tender volatiles, billing each other and confectioned with butter; a basket containing little gateaux of apricots, which I know all young ladies adore; and a jelly of marasquin, bland, insinuating, intoxicating as the glance of beauty. This I designated *Ambroisie de Calypso à la Souveraine de mon Cœur.* And when the ice was brought in—an ice of *plombière* and cherries—how do you think I had shaped them, Madame Fribsbi? In the form

of two hearts united with an arrow, on which I had laid, before it entered, a bridal veil cut in paper, surmounted by a wreath of virginal orange flowers. I stood at the door to watch the effect of this entry. It was but one cry of admiration. The three young ladies filled their glasses with the sparkling Ay, and carried me in a toast. I heard it—I heard Miss speak of me! I heard her say, 'Tell Monsieur Mirobolant that we thank him, we admire him—we love him!' My feet almost failed me as she spoke."

At present, to be sure, there is little sign of this art sense among our cooks; but what do we expect? We may find philosophers among servants, but we do not find artists. The artist is always free. If we had a hired poet or musician in every household, or if our poetry and music were practised only by the overworked and uneducated housewife, poetry and music would be to us only what cooking is now, an ill-performed duty, a source of low pleasure and much evil.

Our apparatus and methods in cooking vary historically, locally, and according to means and education; from the primitive hot stove and forked stick to the machinery of the modern first-class cuisine; from the savage methods still in use in uncivilized countries to the intelligent methods of our great centres of thought; from the miserable outfit of our poor—of that nine tenths of the population who cannot earn enough to live humanly—to the elaborate and finical extremes of the costly kitchens of the rich. Methods and apparatus vary; but the needs of humanity do not vary accordingly, hence much cause for our low standard of cooking and the ill effects thereof.

From the wandering savage's fire of sticks to the modern gas range with all its attachments is a marvellous step, yet less wonderful to us than the first cook-

ing stove, which to our Puritan fathers seemed an unrighteous lessening of the work man, or rather woman, must do to properly live up to the full bearings of the curse laid upon toil in the Garden of Eden. That misreading like many another has delayed evolution and even to-day stands in the way of women, who have failed to think out of their prisons builded half by themselves, half by the accumulated force of tradition and custom. But far beyond coal or gas is the new power electricity, which in the beautiful electrical kitchen at the World's Fair of 1893 delighted the eyes of all who looked. Its costliness was the chief factor in the way of its general adoption, and while Tesla is promising that it shall in some not distant day be cheap as water, another inventor has, after long experiment, discovered a method of producing the force that will, it is promised, be ready for full application in about two years.

There is no space here for the telling of all that is involved in this discovery of the electrician, Dr. William W. Jacques of the Boston Institute of Technology. Like many another hint of these last years of the nineteenth century, it holds a promise beyond any dream of the past. It is our business to be ready for it, and all power of thought and effort we possess may well be given to the study that must, if we comprehend it, mean a reconstruction of both thought and action.

Turning again to this business of cooking, measure for a moment the advance we have made in the art as compared with that made in others. What advance has been made follows the usual lines of human development, when specialization called for the cook, and division of labor gave him his place; then by practice he became modified to suit his profession, became capa-

ble of being a cook. When his cooking was done for large numbers of people he began to learn the generalizations of his occupation, began to learn the science of cookery. When in some degree of freedom, the inventive impulse was allowed to play, when there was room for Art, Art came, and the number and variety of combinations and effects increased. Had this process had as fair a chance as the others, we should have a different world.

In the main, however, it was confined to the limits which forbid all growth ; work done by a few, for a few,—usually done by one, done without chance even for specialization, to say nothing of training or study ; and where the art impulse was and is practically unknown.

The main reason that our household cuisine shows any advance over that of the primitive savage is, that some men have become cooks, and developed the function and its essential machinery. This development has gradually, imperfectly, and with a dead wall of opposing ignorance filtered back into the home. This is how we come to have a cooking-stove instead of an open fire, a choice of egg-beaters, a double boiler, and other trifles of like nature. But the development has been checked constantly by the hands through which every improvement must pass, and the sense of degradation involved in doing work in such companionship keeps our best brains out of this noble, beautiful, useful, and altogether essential human work. There is no other art or science so low as this, so poorly executed, so little understood.

Unfortunately, being human work, a social function, it is intimately connected with all other functions, and the development of the body politic is sharply checked

by this grave deficiency in the nutritive process. Any intelligent work in this direction is the matter of a few years only, and the formal planning of dietaries for infancy, childhood, youth, maturity, old age, and for the sick, has been considered the work of the doctor; the doctor in the meantime thinking no more of the matter than his unlucky patients. It is only within the last decade that medical students have at a few points attended lectures on cookery for the sick, and in one or two instances formed a practice class and prepared themselves the dishes which they have since taught to many an ignorant mother of a family. Such a physician, and the number increases year by year, is a missionary at whatever point he may be set down. He has learned what in good time all will be taught practically as well as theoretically,—that prevention is better than cure, and that with good food, pure air, pure water, plenty of sunshine, and out-door life, sickness cannot show its face. But good food leads and always must in this daily renewal of the body, and thus the knowledge of what is "Good to eat," is the keystone without which the whole temple of the body falls sooner or later into ruin.

To see then that the child and the growing boy and girl are well fed, means a foundation for a healthy maturity, otherwise impossible. But in the sixty-five million and more inhabitants of the United States, how many of them have even a hint of the knowledge that would insure this? The children's lunch basket is filled by the fond mother with the things the child likes best: cake, pie, cookies, pickles,—and by the careless mother with anything that comes to hand. The children of this same careless mother have probably slept in an unventilated room, and are not hungry for break-

fast; the result being that the lunch is eaten on the road to school or at recess, and the child thus goes hungry for a long interval of time,—a disaster to any growing being. The child in freedom runs all day long, and however aimless its activity may appear, it is enormously in excess of the activity of later life. From two to four the child consumes more than a quarter of the supply required by the working man. From four to ten there is a steady increase, while from twelve to fifteen a child requires as much food in actual weight as does a person in the prime of life, a trifle less than the hardest working laborer. Any deficiency in quality or quantity is a much more serious matter at this age than at any other.

Boston, which has always been a sort of experiment station for the rest of the United States, is coming to the conviction that the lunch of the school children is sufficiently important to be put under civic control. The discussion is still going on, but in several schools the experiment has been tried with great success. Mrs. Ellen H. Richards, chemist in the Massachusetts Institute of Technology, and one of the highest authorities in the country, has prepared a series of students' dietaries which were in use during the year 1894–5, in the University of Chicago, a full account of which dietaries may be found in the *New England Kitchen Magazine* for February, 1895, a prelude on the same subject having appeared in the number of the same magazine for July, 1894. Mrs. Richards appeals to school boards all over the country for consideration of the vital interests involved and writes:

"In nearly every state in the Union, there is an agricultural experiment station, and in many there are agricultural colleges. The Government, representing the people, in this way expends

large sums annually for the food of any citizen, even though his body and brain may represent hundreds of thousands of dollars of invested capital, while the brute animal is worth only one or two hundred dollars. . . . The prevalent disregard of the importance of human dietetics is especially noticeable in connection with the life of students. Farmers know that their oxen and horses must be well fed in order that they may do their best work. On the other hand, college trustees and professors too frequently think that they do their duty by their students if they provide a sufficiently heavy load to be hauled. If a student breaks down, the remark is heard on all sides, 'What a pity he studied so hard!' And no one asks, 'Was he well fed?'"

Under this head of the preparation of dietaries, we may also include markets and marketing, adulteration, and the general supervision of food, since all make part of the dietary, as of all civilized living. Markets must include also the groceries where green as well as dry provisions are sold, and the demand for scrupulous cleanliness of place and handling is to some extent backed by law, and should be to a much greater extent. Adulteration with all its dangers and the methods of detecting adulteration means for us only one more hint of the work to be done, but Mrs. Richards has an admirable little pamphlet on the subject which should be owned by every housekeeper. She has also prepared a small case of tests in bottles for use in the kitchen, and these contain all the ordinary simple tests for adulteration.

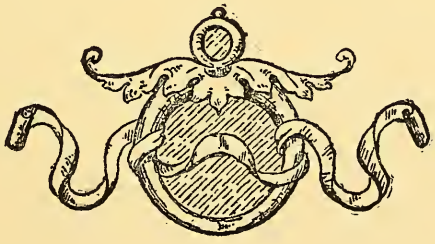
More and more, we see, the trend is toward scientific handling of all that makes up civilized living. The single housekeeper is at a steadily increasing disadvantage. We are being pushed,—often against our wishes and protesting wildly as we go—but still pushed, toward that combination which alone can lighten burdens,

lessen expenses and make possible for the majority the good things known now only to the minority. This business of living is a science, nor can any one woman master all its countless details. The time has come for the work of the specialist, and the end of the smattering of knowledge which thus far has been the allowance of most women. There is work enough for all; no woman need lack, but the time is ripe for it to take such coherent form that each may know and perfect her own, and cease once for all the aimless, heart-breaking, detailed distraction that for most of us makes the bulk of what we call living.

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CHAPTER X.

CLEANING AND ITS PROCESSES.

Cleaning the Essential and Permanent Household Industry—The Excretory System of the Household Organism—Friction, Exposure, and Decay—Essential and Necessary Waste—The Grave and the Garret—Fuel and Flies—The Dirt we Make—Cleaning, Mechanical and Chemical—Primitive Household without Excretory System—Semi-Annual Attacks on Dirt—Elements of Cleaning Processes, Sweeping, Dusting and Washing—Development and Excesses—The New England Housewife and her Dutch Prototype—Fluff—Dust and its Dangers—Bacteria and Microbes—Antiseptic Cleaning—Light and Cleanliness, Physical, Mental, and Moral—What it is to be Clean, and the Results.

CLEANLINESS is next to godliness has, in these latter days, taken on almost the significance of cleanliness *is* godliness. Ten great industries, the parents of all arts we know to-day, have passed, save two, into the hands of men, and one is passing. Cooking and all matters connected with food may in time have no place in the home itself, nor is it necessary in the last analysis that they should. But cleaning is a process which, from the personal side with the always more and more beautifully and perfectly appointed bath-room to its perfected and perfecting forms in antiseptic handling of all sources of infection, can never pass. Sanitation is its summary and sanitation should

and must become a part of every intelligent woman's working outfit.

We have already drawn the analogy between this household industry of cleaning and the physical function of excretion, which may seem to some far-fetched, to others perhaps, unpleasant. Yet no other comparison so well fits the facts. The functions are not only analogous but identical. The Household organism is a living structure in the same sense that an oyster shell is. It is part of man, an essential part. He could not live, as he is now, without the household as it is now. His household structure changes with him, grows with his growth and strengthens with his strength. It deteriorates also as he deteriorates. It is part of him.

The structure of the house like all organic structures dies ; that is, it wears out. The state of being lived in it is an exhausting one. Inorganic material remains unchanged. Let the human being take his portion of these inorganic materials, put them together in organic forms, live in them and presently they die. In other words, use them and they get used up. That is, after all, all there is in any form of dying. If ill constructed or allowed to get seriously out of order, the structure dies more quickly. That is all, yet, do the best we may, all living things it would seem must die.

Build the house perfectly. Guard and tend it with utmost skill, it has its period, and in the meantime its tissues waste from year to year, from day to day. That waste of tissue is identical with the waste of tissue in the house of flesh in which we live. If we diligently remove the waste matter and constantly supply fresh material as far as possible, we are performing the excretory function.

From all our innumerable pores hourly, yes, momentarily, exude waste products of the process of living. Within, the blood runs darkly laden with the waste matter of fibre and tissue, and besides that is the large disposal of the unusable material in our crude food supply. Proper removal of all these keeps the body clean ; clean is in such case the synonym for healthy, and proper removal of analogous waste of the house keeps it clean and healthy too.

There is a vast difference in the relative waste of different tissues. A house of wood wastes faster than a house of stone ; dies faster ; is harder to keep clean. If that house of wood lined with cloth and paper these die faster than the wood ; are harder to keep clean. If the house of wood be lined with cloth and paper, be filled with a multitude of intricate articles offering multiple surfaces to friction and decay—composed also of substances of varying destructibility—we arrange for ourselves a home dying most swiftly and always hardest to clean, and the vital energy of its inhabitant must be ceaselessly spent in the removal of enormous waste.

Precisely as our own vital energies are overtaxed when the system is clogged with effete matter, and the whole organism struggles to throw it off through pores and glands, this extra exertion greatly interfering with the free use of energy in other directions, so does the overfilled home, clogged with furniture, and choked with surplus cloth and paper, ashes, garbage, waste of all kinds, tax the energies of the occupant to throw off the injurious mass.

No less is it true and on the same principle that, as the presence of effete matter in the body invites disease, so does the presence of surplus effete matter in the

house invite disease, the invitation being generally accepted.

The Household Economist, trained and educated, will come to some sound conclusions on this subject. When we genuinely come to regard our homes to be extensions of ourselves, as is the workman's tool, or the sensitive bow of the violinist ; when their internal processes are as our internal processes, we shall have a care how we build and fill them, and what we do therein.

Like the physical excretory processes, those of the house are twofold. One is the removal of waste of tissue ; the other the removal of waste material from the new matter supplied. To so select the materials of our houses as to have them afford the least waste of tissues, and to so select their contents and especially their more transient supplies as to have them afford the least waste, is one of the chief efforts of the scientific Household Economist.

Follow the progress from wood to coal ; from coal to oil or gas ; from gas to electricity, and note the decrease in waste matter and its accompanying decrease of labor.

Compare a room filled, as are most of ours, with innumerable movables and dustables, masses of stuffing and draperies, and mere piling up, with a room pure and beautiful as a temple, rich and soft in color, full of curving lovely lines, but mainly hard and smooth in surfaces, and possessing few movables, and consider attentively the accompanying decrease in labor.

Think for a moment what it is to the body to be compelled to spend most of its internal energies in simply clearing out and cleansing itself; how digestion, respiration, and circulation,—every other vital process

suffers and necessary external exertion becomes well-nigh impossible. Then think what it is to the home dweller to have to spend all her vital energy in cleaning that home, and its turbid contents; how the other domestic industries suffer in consequence, and how any outside interest or exertion becomes almost impossible.

Is it not very plain at this very point, how Household Economics touches directly on Social Economics and is involved in it and with it? Is it not plain how vitally important is this excretory system of the household, to the people within it, and the people without it; to the world of which it is a part?

We cannot detach one part of the human organism from another, nor dissociate its essential processes. It is plainly then of deepest importance to the housekeeper, to the family, and to society, that our household economy be in the same condition of clear, clean, healthful activity, as is necessary in the individual body, and in the State. Since we can all see that friction promotes waste in the tissues of a house, we should have them so composed and arranged as to avoid friction as far as is consistent with right use. Since exposure is another element of destruction, we should preserve from exposure. Since decay takes place even in smooth and guarded substances, we should know how to choose those which decay most slowly.

The law sums itself up in reducing as far as possible the conditions of essential waste. Some there must be, but as the difference between cleaning a porcelain-lined sink and a wooden one, so will be the difference between cleaning the scientifically built, lined, and furnished house, and the rag-bags, waste-baskets, and dust traps we are content to live in now. Not content with the waste of our useful articles we even preserve

them when past use. We maintain graveyards in the garret and mausoleums in the cellar, wherein more things may gradually return to dust, for our further labor and dirtiness.

Our grandmothers did it? Yes, but our grandmothers had not modern conveniences to fall back upon, nor did they have moth-breeding furnaces, and other modern engines of destruction.

As to the materials we now bring in for the purpose, it would seem, of "furnishing employment," the steady stream of cheap reading matter, writing materials, sewing materials, playing materials, dressing materials, and, mightiest of all, eating materials, with all the ceaseless and debasing labor in keeping them clean and clearing them away, is a condition which goes far in accounting for our low development in more ways than one.

Excessive excretion is not only unprofitable to the system; it is a condition of disease. Our household industries are as yet, at best, in a low form of development, and this naturally compels the form so often used in speaking of them, "degrading." Excess in a special function is worse than this. It is not a return to a lower but still healthy form; it is advanced and yet unhealthy; not a physiological but a pathological process.

The fact that we make so much dirt in a household and must devote commensurate energy to clearing it up after ourselves, is a morbid condition in Household Economics, and so to be studied, not for its morbidity but because to know a thing morbid is the beginning of cure. To put the case in a more specific light, to devote the elaborate and highly specialized energies of a modern human being to the removal of effete matter

from its environing structure, is a desecration of God's highest creation. That is why Martha was lower than Mary.

It is not a light matter, the way in which we spend our time, our strength, our intelligence. The higher duties of womanhood, the higher evolution of humanity through her, of society through the household, demand a more healthful condition of Household Economics than this present shows. Our households are surcharged with waste matter, and our lives spent in its arrangement and removal.

Soul, mind, and body are limited by the dustpan. We need not therefore jump to the hasty conclusion that all cleansing processes are debasing. On the contrary there is no function more essential to the progress of humanity. To rightly clean right objects is a noble work; as noble as the work of heart and lung and kidney and sebaceous gland. It is necessary to health, and therefore right to do. But it should be done in the ordered, specialized, perfected industry proper to humanity and never allowed to consume more than its proportion of household or social vitality.

"I don't see why we are so much dirtier than we used to be," said a vigorous old lady the other day as she laid down a copy of the *Sanitarian*. "'Dangers of River Water'! We drank what we pleased when I was young. This talk about bacteria seems to me like all the other fads. It was Life Elixir a year or two ago. Now its bacteria. For my part I have some faith in the gastric juice. It appears to be strong enough to digest your ten course lunches, and I rather fancy it will manage bacteria."

This faith appears to be with many, and in a sense the old lady had truth on her side. On the other hand

we deal with a series of constantly complicating circumstances. Philadelphia for instance, once a quiet little city, green fields all about, manufactories unknown, and stock yards unheard of,—all this true a hundred years ago,—drinks daily an extract of its grandfathers' bones, since three cemeteries drain into the Schuylkill. And on the borders of this once limpid river stand factories of all orders whose refuse, often of the most obnoxious and even malignant character, is dumped or floated into the stream, which receives also every form of ordure and filth. We have touched upon this point already in our talk on "The Organism of the House," but it is an essential portion of anything there is to be said on cleaning.

The gastric juice helps us through many crises, but it is not warranted to deal with modern dirt. We are perpetually and carefully to remember that we have not only all our own dirt to take care of but all the dirt of our ancestors. Their lives were given to saturating the soil with all forms of sewage, waste water being supposed to be no harm to anybody. Even our cities had for long absolutely no sewage system, and thus, in New York for instance, with its two hundred years and more of human ignorance at work, the ground cannot be disturbed without giving off the stored gases of all this period, the result being malaria for every susceptible constitution.

This for out doors, and the story is true not only for New York but for all points, whether in city, town, or village, where human beings mass together. How is it within doors?

Household administration means a state of things of the same order. Take the houses we all know, perhaps even live in, where carpets are taken up by

those who know sanitary laws certainly once a year; by those who do not, once in two or three, perhaps only in five or ten or twenty years, the last case being no uncommon one even among refined and cultivated people. They seemed clean for they were often swept, yet think of the accumulation below. Aged bacteria bided their time, burrowing happily in the bed provided for them, every heavy step releasing some of the occupants, every sweeping more, till in good time came the unaccountable disease, pneumonia it may be or more probbably consumption, and the obituary notice recorded "Another visitation of Divine Providence."

Mrs. Ellen H. Richards tells the story of an experiment where as much dust as could be taken on the point of a pin, was removed from the top of a dining-room door, the tops of doors being one of the places most often neglected in dusting. One of the pastimes of the bacteriologist is to "plant" a little dust and watch through the microscope the growth of colonies, each colony representing one original germ impossible to be seen save with the most powerful microscope, but whose descendants are visible to all who look out. Out of this pin-point of dust grew three thousand living organisms, not all malignant, but all enemies of health. The dry duster had never reached them. The feather duster had no power save for distribution. A damp one alone could render them harmless, but not one housekeeper in a thousand knows the virtues of a duster just damp enough or teaches its use to the housemaid.

A beam of sunlight in a darkened room shows us myriad motes in the sunbeam. But the sun has no such dwellers in any beam that ever shone. On the contrary these are the otherwise invisible inhabitants of the room. Were this room filled with air previously

filtered by passing through cotton wool, the beam would be invisible till it struck the opposite wall. It is dust we deal with, and the heavier the nature of the particles the more quickly will they settle, that on the tops of pianos and other smooth surfaces being different in quality from that in the track of the sunbeam.

The chemist's analysis shows us in the heavier portions of dust ground up siliceous matter pulverized by traffic, etc., in the road, sulphate of soda and other salts, and general local impurities. If a sample of dust is collected and carefully ignited, the organic matter burns away, any salts of ammonia volatilize, and only the mineral portion remains unacted upon. By many such experiments it has been proved that more than half the suspended matter in the air is of organic origin, most of it composed of germs capable of setting up fermentation, disease, and decay.

Surface soil, such as mud brought in by boots or muddy skirts, can be removed mechanically with ease. But old dust in a carpet, dislodged by a broom, simply settles back at any convenient point. Damp tea-leaves assist in holding it. So do damp sand or bits of newspaper or salt, but the damp helper must be chosen with reference to the fact that it must not stain the carpet or rug. Nor must it be too wet or so fine that it sinks into the substance to be cleaned.

It is necessary, then, to study substances and what mode of cleaning belongs to each, but first is another study : that of the forms which seek their destruction. Bacteria, yeasts, and moulds, are the three to be most dreaded, and these are defined at length in Dr. Prudden's little manual, *Dust and its Dangers*, which it is necessary to know well, adding to it also his *Story of the Bacteria.*

Modern life and dust are synonyms. At every turn we add to our already too complicated existences more forms of dust-holding and dust-breeding property, but no manual of how to neutralize their effects is sold with them. What we have to learn, then, must come as it can, and every woman must study, since possessions vary according to taste, the amount of money to be spent, and a thousand personal reasons.

A slight course of bacteriology is necessary for any real worker in these lines. In the laboratory of Chicago University, for instance, there is a term's work in the testing, first of soils in relation to free drainage, a knowledge indispensable to the builder of a house; then of water and its sterilization, as well as that of milk, with lessons in food adulterations and their tests. To this end Mrs. Ellen H. Richards, of the Boston Institute of Technology, has prepared a "Housekeeper's Cabinet," containing a set of bottles with the tests for all ordinary adulterations, the steady increase in which makes this knowledge more important than ever before.

As to bacteria, there are flourishing colonies of them, each student owning one or more obtained by the most accurate method which is as follows:

A given volume of air is forced through a tube which has been plugged with cotton batting, heated beforehand very hot in order to kill any germs that may have been upon it. This cotton, if properly packed in the tube, will catch and hold in its meshes every dust particle, however small, and with these all the bacteria which were in the air forced through the tube.

The cotton plug is now pulled out with a pair of perfectly clean forceps, and is rinsed off into a small dish in which the bacterial food is put; that is, some

preparation with a small portion of gelatine in it. The dish is then covered and set in a warm place to stand till each living germ grows and multiplies till it forms a visible colony. Counting the colonies of course represents the number of living germs which were present in the whole volume of air forced through the plug. Fine sand is often substituted for cotton, and at times granulated sugar. Simplest of all is the putting in perfectly clean, shallow glass dishes, a thin layer of the gelatinous culture medium, and allowing it to solidify by cooling. A close fitting cover is on each during the process of hardening.

One of such dishes with the cover removed is set in a still place and the dust allowed to settle upon it. Five minutes is sufficient. The inorganic parts of the dust particle are not to be considered. But the living ones find themselves on a newly discovered continent, and begin on the instant to multiply and inherit the land.

A small child of five has followed this method, the "plate-method," with delight, studying differences between mould and yeast spores, and bacteria, and enjoying the little case of innocent looking glass boxes with the nutrient gelatine contents, as the amateur photographer enjoys his camera. In like manner, the child can share what to it is the game of testing for adulterations, though one may still hope for the day when such knowledge may be unnecessary, and pure food, pure air, and pure water be the portion of all humankind.

In our primitive stages—that is, our early Colonial life—the house had no excretory system, and this remains true of myriads of villages still. The ground was considered a sufficient absorber of all liquid sew-

age, and the drain, if there was one, was close to well or cistern. As to dirt, the New England housewife, then and now, had and has a semi-annual cleaning, every article in the house that could be moved having its own washing and wiping. But even with this the cellar went often undisturbed, and piles of decaying vegetables and every form of mould, made breeding ground for bacteria.

There are towns in Holland where even the stables are scrubbed daily, and a wandering fly or a particle of dust is attacked with passionate zeal. Yet in doors every principle of personal hygiene is violated at every turn. It is the outside of the platter that shines with cleanliness. For the inside there had better be no question, since methods are all microbe-producing.

As to fluff, insidious, all-pervading, unconquerable fluff, every housekeeper has questioned whence it comes. Fluff might be called the ghost of murdered dirt. One may sweep and dust and polish, a spare bedroom for instance, and before a week is gone find fluff rampant under everything. It dematerializes too, a foot square rolling into a wad one may hold between thumb and finger.

Dealing with this enemy is simple. The abolition of most old-fashioned sweeping with a broom is one of the most effectual means. A small brush for corners, and a good carpet sweeper, does the work for the rest of the room if carpeted or with heavy rug. For mattings and oiled or waxed floors a long-handled soft brush, and for all the constant use of dampened dusters and floor wiping-cloths. Fluff is the lint from carpets and beds, meeting with dust enough as it forms to give it consistence. Under the damp cloth it shrinks and disappears.

For carpets and rugs a woollen cloth wrung out of warm water in which a little ammonia has been put, a tablespoonful to a pailful, not only brightens the carpet but removes dust so perfectly that there are no materials left with which to make fluff. It must never be a wet cloth, but wrung till nearly dry.

To pick up loose threads or bits, brush up footmarks or aggressive dirt and then wipe, takes less than half the time of the ordinary sweeping. There is far less dust on the furniture, and keeping clean is made easier in every way. If fluff still appears remember that it is the cleanest form of inevitable dirt, and ignore it till the time is ripe for its abolition.

This is the lightest form of household waste or refusel, but in closest connection stands the mass of ashes, sweepings, waste paper, and general garbage. As to disposition of all this, each city appears to be experimenting on its own account, St. Paul, Minnesota, having developed what appears to be the best system in the United States. All household refuse is emptied into hard-wood casks, forty-five gallons each, hermetically sealed by means of an iron rod to bottom of cask, carried and shipped some fifteen miles out, to a plant which converts it into fertilizing materials in an entirely unobjectionable manner. The casks are cleaned there and returned ready for use again. In the populous part of the city, refuse is collected between the hours of midnight and 9 A.M., a new departure for this country and insuring the least annoyance during the process.

This is the most difficult phase of cleanliness for the household, since as a rule we are at the mercy of the average garbage collector. But all of us have certain legal rights, and we are to understand what we must

demand from the city government at any point ; in brief as follows :

Garbage must be collected six times a week. Kitchen garbage, sweepings, cut grass, waste paper, old boots and shoes, and all other combustible waste is to be called for and removed from all buildings. The contractor should issue cards giving his name and address and stating the days for collecting garbage in particular streets and districts, and designating between what hours collectors will call. A copy of such card should be left at each and every building once a month. The contractor should be fined for any neglect in serving these cards of notice.

Philadelphia has given her definition of a clean cellar and now requires it as follows :

1st, a cemented floor and sides ; 2d, free from dirt, ashes, animal or vegetable matter, and perfectly dry ; no cesspools or privy vaults, and whitewashed thoroughly once a year. For the year 1894, 675 filthy cellars were notified and compelled to clean. This should be a universal law.

All this is merely illustrative. We have no space for directions in the many lines that cleaning must take, but from attic to cellar it is possible to reduce all its formula and know the needs of each. Antiseptic cleaning, in use in all hospitals, dispensaries, etc., is learned by the trained nurse, but belongs no less to the necessary knowledge of the house mistress. There are manuals containing full directions, but here a physician must be consulted till the time comes when the names, properties, and uses of all simple disinfectants are taught as naturally as the multiplication table. Either this must be, or such combined and hearty progress in true living, that disinfectants become unnecessary, a millen-

nial state of things, but one we can bring about if we will.

This business of cleaning like every thing else is first of all personal, and there is not a bit of what we call civilization that does not compel more and more attention to it. Take the elevated railroad, belching forever as it goes its cloud of cinders, dust, and grime; a cloud so angry and potent that dissectors show us in plates of the lungs the portions which have taken on traceries of black pigment as part of their very substance. Soft coal in many parts of the country compels the same results, not only within but without, and I have even gone so far as to insist that soft coal and the moral sense cannot exist side by side.

Let us take a very positive demonstration of the truth of this rather extreme statement. In a university town of a Western state where these lectures were at one time given, I stood one November day under a sky blue and clear as midsummer, watching thick black columns pouring upward not only from the great chimneys of many manufactories, but from the tall stack at the back of the university itself. They rose to fall again in a rain of fine pellets, each with its odor of creosote and atom of oil warranted to make a smear out of even the tiniest. From homes in lesser degree came minor columns, always of the same nature and effect, till even the blades of grass seemed coated each with its film of soot.

If this film had remained out of doors, the face of nature, helped by dew and rain, might have borne it. But the face of man was another matter. For the few who had water enough to wash freely, there was relative cleanliness. For the mass to whom water was a luxury, since one man owned gas works and trolley

line and water-works as well, the water sold as it were in driblets—the battle was practically unknown.

This was one phase accented by the columns as they rose and fell. For another came the film of oily black, coating everything inside and out. In the college library the thirty thousand volumes had the gray and venerable expression of a century, and often in the choicest, one found the faint black imprint of a thumb and finger which the reader had been powerless to keep clean. Grimy women with mops and cloths wiped away the deposit from window and wall and floor,—a daily task.

"I have lived in this town for three years," said an irascible and discouraged professor, "and I contend that the soot has gone to the brain of them all. I myself, even, in whom a passion of cleanliness is the birthright, gaze unwinkingly on a smut on the countenance of my fairest student, and decline to look at my own collar and cuffs. Chicago is insufferable, but this somehow seems even worse. There is creosote in every brain cell. Of that I am certain, and naturally, it displaces gray matter. Not a human being in this town, therefore, is in a quite normal condition, the deposit having been too much for all of us. They seem to think it a great joke if they think at all. To me it accounts for all that holds the town back, and I contend that a place which is calmly and unquestioningly given to smut and smear, will need an earthquake to rouse it from its apathy. Soft coal is as great a curse to the user as a diet of potatoes or rice has proved itself to a nation, but that is another story."

Here then, again, comes a pointing to the fact that all begins in personal cleanliness, and that whatever hinders or prevents the personal form, hinders and pre-

vents the development of all. Once more then we have the interdependence of home and state, and once more we return to the consciousness that whatever harms one harms all. Cleanliness then is ethics, and is owed from the individual to every other individual. The matter of food may have its strong personal bias, with no particular harm done unless indeed the individual is bent upon abnormities of taste. But this matter of cleaning concerns the State, and the man who will not wash, usually because he has never had anything to wash in, or taught the delights of the bath, must be made to have his tub and know its uses.

For the home then, comes first this business of personal cleanliness, from the first bath of the new born child, on through the knowledge of all that water and kindred agencies may do for every age, and all phases of life for this body of man. The cleansing of garments, with every most delicate and careful manner of renewing their beauty, by laundry processes whether of iron, mangle, or pressure ; what may safely be used as bleachers with no danger of injuring fabric, and the laws that govern the handling of each tissue whether silk, linen, cotton, or woollen—all this is an essential part of the knowledge of every woman, since, whether she has her own home or not, she at least has knowledge of the homes of others, and is interested in the care of her own belongings.

Hard on this comes the last form, vital no less in the State than in the home, since, where perfect cleanliness is the law of the house, and the child sees what honor it holds, what type of wisdom it demands to make all processes as nearly unseen as practicable, yet always constant, always certain, such child will not, as he passes from childhood to manhood, and the larger life

of the State, give less care to the public cleaning than he has known under his own roof. It is because, in part at least, such work is held ignoble and degrading—because only inferiors as a rule fulfil its needs—that our public housekeeping makes us the shame of civilized nations. But the white brigade that marched, fifteen hundred strong, under Colonel George Waring, our greatest sanitary authority, down Broadway in the spring of 1896, were witness of what had been done, and what will be done as this business of public housekeeping passes from the hands of untaught, unscrupulous, and thieving politicians into the control that long ago should have demanded its rights. To keep the world clean—this is one great task for women. Not in the old sense of scrubbing away at her own steps, back or front, a passionate scouring of tins, and cleaning of stored inutilities, but in the newer one of making the whole world so clean that her own bit of it must perforce be the same. For means to this end I commend you to the manuals whose names are given, and to the study of the best and newest forms of sanitation, above all in hospitals, since in these the latest and most absolutely secure methods of cleaning and of keeping clean are adopted and worked out in full.

It is no part of the present lecture to give special forms of cleaning. Those will all be found in the long chapter devoted to "Cleaning," in *The Easiest Way in Housekeeping and Cooking*. Lamps alone, with their present petticoated exuberance and variety of styles, require a manual to themselves, and more than one woman now makes a living in going from house to house as lamp-trimmer and care-taker. Bric-à-brac also, in its profuse and increasingly delicate orders, means another industry, that of professional duster.

The peripatetic mender of glass or porcelain finds also a vocation, since breakage is the law where maids and the feather-duster sweep and swoop at will. Draperies and rugs, and their laws, call for another. In short, the modern home, where wealth brings in according to fancy, means a battalion of experts in charge, and this will be true till another law is learned, and certain now unknown simplicities are recognized as the necessity of beauty.

The abolition of much that we know as bric-à-brac, would mean enormous gain in time for the bulk of housekeepers, no less than deep rest to an over-burdened world. And as a suggestion of a future in which we may be certain that evolution will give us not only a higher art sense, but a deeper sense of what belongs to the community, let me quote the word of one whose insight is at many points unmatched by that of any English-speaking man, Edward Carpenter of England :

"Possibly we shall some day again build our houses or dwelling places so simple and elemental in character that they will fit in the nooks of the hills or along the banks of the streams or by the edges of the woods without disturbing the harmony of the landscape or the songs of the birds. Then the great temples, beautiful on every height, or by the shores of the rivers and the lakes, will be the storehouses of all precious and lovely things. There men, women and children will come to share in the great and wonderful common life ; the gardens around will be sacred to the unharmed and welcome animals ! There will be all store and all facilities of books and music and art for everyone. Every village, every little settlement will have such hall or halls. Gladly will each man and more gladly still each woman, take his or her treasures, except what are immediately and necessarily in use, to the common centre, where their value will be increased a hundred or a thousand fold, by the greater number of those who can enjoy them, and where far more perfectly and with far less toil, they can be tended, than if scattered

abroad in private hands. At one stroke, half the labor and all the anxiety of domestic care-taking will be annihilated. . . . Neither man nor woman will be tied in slavery to the lodge which they inhabit; and in becoming once more a part of nature, the human habitation will at length cease to be what it is now for at least half the human race—a prison."

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CHAPTER XI.

HOUSEHOLD SERVICE.

The Servant Question—Total Inadequacy of Existing Treatment—Failure to Grasp Essential Distinction between Service and Labor—Service a Condition Peculiar to Humanity—Philosophy of Service—Division of Labor and Co-ordination—Primitive Co-ordination Compulsory—The Army of Xerxes as Illustration of its Inferiority—Evolution of Service—Effect of Service on Character—Status of Domestic Service in Social Economy—Present Condition—Some Secondary Conditions of Domestic Service—The Stranger within our Gates—Reports of Bureaus of Labor—Philadelphia Special Inquiry in this Connection—Syracuse, N. Y. and its Work—Household Employees in Australia—The Training School and its Results—Matters of Life and Death—Diploma and License—Servant, Employee, Artist, and Professor.

WE have now come to that most vexed and vexing question of household economy as at present practised, domestic service. It is a functional difficulty, an imperfect, arduous, and painful performance of those internal activities essential to the life of the household. No domestic question is more discussed, none is more vital to the comfort, health, and progress of our lives; yet no real light is thrown on it, no definite advance is made.

Perhaps this is largely because of our misapprehension of *what is* the subject under discussion. We call it the "Servant Question." It is really the *service* question. Function comes before organ ; the servant is the product of the service.

It is service which we have now to consider ; domestic service as related to household economy, and so to social economy. In our common treatment, we discuss such points as the inadequacy of our servants, the insubordination of our servants, the ingratitude of our servants ; or, on the other hand, the inconsiderate treatment of our servants, the social inequality of our servants, the lack of proper knowledge in the mistress of our servants. These are all interesting points, but none of them touch on the condition of which they are, indeed, but symptoms.

Let us enter upon a brief and necessarily suggestive study of service, knowing that it can be no more than a preface to the larger efforts of any course to come. No part of that course demands more thorough understanding than this. On this condition of domestic service rests the status of household economy, and on the status of household economy rests the development of social economy, which is the science of living. This is no side issue of passing interest. It is a vital process of social life.

What then is the subject we are to study? Service. What is "service"? Is it equivalent to "labor"? By no means. There can be labor without service, but, on the other hand, there can be no service without labor.

Service is a form of labor.

What are its qualities? Is it, as we are so sublimely told by the minor philosopher, the doing of something

for someone else, the humanizing and elevating process of exchange of activities in which we all live, and so serve each other, and so are all servants?

No, I grieve to say. It is not. This use of the word service is a derivative one. It is used in the sense of all intelligent activity *serving* some purpose, being intended for something or someone, and so "serving" them. As the musician serves to make music, so serves the world, so is our servant. It is a far-fetched and illegitimate conclusion.

The essential quality of service, as distinguished from other forms of labor, is that it is done under the direction of some one person, for the further expression of that person's will. "Ye cannot serve two masters." "The servant" implies "The Master"; "service" is conditioned upon "mastery." It is not that the labor of the servant "serves" some one person or twenty. In that sense, truly, we all serve each other. But it is the servant himself who "serves" as an extension of personality to the master; a further self through which to do his will.

The difference between the servant and the laborer is the difference between obedience and agreement, the difference between submission and acquiescence.

Your musician, your statesman, your scientist "serve" truly; they serve humanity, as a book serves to hold truth, as a conduit serves to bring water, as glass serves to transmit light. Musician, statesman, and scientist serve consciously and intelligently, and they glory in their service. But where is the master to these servants? The moment your musician or artist or poet, your statesman or inventor is bought or hired to serve a master,—to express another's will—their glory is gone. "Mr. So and So's poet" would cut

no higher figure than "Mr. So and So's butler," did he but serve to sing his master's will merely. Even the poet-laureate, last survival of the bard of older days, suffers some little diminution in his high place in that he *has* to sing on certain occasions, and we, with sure instinct, rightly doubt the product of a surrendered power.

Let us look back now to the evolution of human labor, see where service entered into it and how and why; and what its course has been, keeping always an open and unprejudiced mind.

Service, be it said in passing, is a condition peculiar to humanity. Save for the ants and their slaves, no creature other than man moves a limb except at the instance of his own desire. But with us, from the beginning, one has bowed to another and we have extended our interhuman authority to the doors of death and beyond them. Now let us very earnestly divest ourselves of such superficial apprehension of the words we are to use as would prevent the deeper perception of their meaning.

The verb "to serve," in the sense in which it is used in our domestic service, demands as an essential quality that other verb "to obey." It we doubt this, look at our common objection of "insubordination" among our servants. It is a "subordinate" position. They are "under orders." They "must obey." But does not any worker obey? you will ask. Are we not all under direction of someone else? Not in the sense of "the servant," by any possible stretching of words. We hire a servant not to serve the ends of a given industry, but to serve *us*. That service involves not the acceptance of a few main directions, but incessant obedience to varying orders. "Servants obey your masters."

If it is the work they do which makes them servants, if all men who work for each other are servants, what makes the difference between serving as an apprentice and being a free workman? The workman is the same. It is the condition of tutelage which makes the difference; the immediate, incessant subservience to another's will.

The best growth of the human creature comes from the development of our two great human characteristics: *judgment*, the power to decide among conditions; and *will*, the power to execute that decision. These faculties, like all others, improve by practice. *Decide* and *do* continually, and we gain power to decide and do. Surrender this power, waive our judgment, and give up our will, and we remain undeveloped. That is why "servants are like children." That is why certain associate characteristics, "the vices of the slave," always distinguish the condition of servitude. It is a sub-human position.

We are to make searching analysis of the birth and growth of human activity, in order so to understand our present conditions; and it must be done on a scientific basis. Life means change, change means motion; motion, in an organ, means action. Action in an organism becomes two-fold: internal and external. External action, in an organization, divides again into individual and co-ordinate activity—the action of the individual to maintain his individual life, and the co-ordinate action of the organization to maintain its corporate life.

In this line of development, the vegetable world is limited almost to the internal action of an organ; external action, as of an organism, is checked by their relation to the food supply, which is fixed. The only

external action of a plant is where it circumvents obstacles, turns towards the light, etc.

The animal organism, being free to run after its food supply, developed of necessity a high degree of external activity; but made only slight advance towards co-ordination. Packs of hunting-dogs or wolves are vaguely co-ordinated. The service of the sentinel among some grazing animals, and among the beavers, is rudimentary organization. The exception of the ants and bees, a notable one, rests on their having a fixed food supply, plentiful, and obtainable by simple means. This gave them the fixed habitat and surplus energy for a common end, which flows into organic relation as inevitably as nomadism, over-exertion, and diverse ends prevent it.

Man went through the same process. As a carnivorous nomad he remained unorganized, save for occasional hunting and fighting combinations, no nobler than the dog pack. His pastoral era was a singular step. The full and constant supply of meat without the exertion of hunting or the danger of fighting, developed nervous energy to a vast extent, while his ferocity was necessarily checked by the nature of his food supply. He had to *preserve*—more than to destroy—and it "altered human nature" tremendously.

Still, there were limits. It took many cattle to have their increase maintain a family, and families grew. Many cattle took much grass, much grass took much ground. Men had to wander and live far apart; and the progress of humanity rests upon men's living together. Still, co-ordinate labor made some progress in the pastoral era. The family was knit closely together by their continued isolation and wandering life. What relation did establish itself was between the

members of the family on lines of affection and mutual need, and between them and their cattle who kept them alive.

With the development of the family into the tribe came a sense of human relationship hitherto unknown. This big family had a common beginning and a common end, and so learned common effort. Here comes in "service" in its specific sense.

The hunting savage could make no slave, because he could not hunt for him. That would be to be his slave; and to arm him for the hunt meant to free him. To hunt for a living means freedom, as dust is free. The pastoral savage could make slaves and did. There was abundance to eat, and the maimed slave could guide the herd while the master guided him. Pastoral slavery is mild and pleasant. The family was, in any case, a despotism. There was no distinction between son and slave, or wife and slave, till it came to property—and "that is another story."

But with agriculture came a great change. Again the food supply increased in amount and decreased in extent, so to speak. The hunter must have forty square miles, to eat; the shepherd four, perhaps; the farmer with a few acres can raise more food in less time than either of them. And now that his food supply was stationary he could build a house. Then with the immense increase in surplus energy, came the multiform activities of human life; and those multiform activities demanded in their very nature co-ordinated labor.

As we have already seen in our study of the development of industry, human labor is developed in proportion to the number it is done by and the number it is done for. In this industrial sense the house servant

is limited absolutely in that his work is done for one, the bottom limit. It is only human at all in that it is not done for oneself. Effort for personal ends is the effort of the animal; human effort is essentially co-ordinate, but this is its lowest form.

Divided and co-ordinate labor is the external function of the human organization. Just as our internal organs labor co-ordinately for the preservation of our lives, and therefore of their own, finding a far better livelihood as well fed, well warmed, well guarded organs of definite use, than ever they found as hapless amœbæ, so we, human beings, labor co-ordinately in our well-defined activities for the preservation of the social life, in which is our own; finding a far better livelihood as artists, artisans, and the like than ever we did in the disconnected freedom of the noble savage.

This growth, however, required in the beginning compulsion. When the increasing power of the brain called for more than one pair of hands to execute its intentions, the larger brain knew no better way of securing the aid of the other hands than by enforced service. Compulsory servitude is the first form of co-operation;—of working together. In its lowest form the superior party in the arrangement deputed all the work to the inferior, contenting himself with direction merely, and living without personal labor. The evil effects of this condition are clearly instanced by any advanced form of chattel slavery.

The unintelligent and undesired labor of the slave degrades him; and the position of the master, cut off from the human relation, degrades him also.

The failure of this process of laboring through others instead of with them, finds glaring instance in the rout of the army of Xerxes. His soldiers were

slaves whipped to the front by their officers and masters. The little band of free Greeks, who did their own fighting, easily overcame them despite the vast proportion in which the Greeks were outnumbered.

Soldier, artist, craftsman, every form of human activity which reaches high development, does so in proportion to its freedom. That is a mere truism after all—growth means freedom. A thing restrained cannot grow.

The only evolution of which service is capable, lies in the multiplication of individual needs and the development of specialized servants for each need. From the Man Friday era to the servant ridden household of the Oriental, or our own horde of retainers, we find House Steward, Housekeeper, Cook, Laundress, Lady's Maid, Valet, Groom of the Chambers, Butler, Coachman, Footman, Stable Groom, House Maid, Chamber Maid, Parlor Maid, Still Room Maid, Pantry Maid, Scullery Maid, Nurse, and Nursery Governess, with all their second and even third assistants down to "Boots" and "Buttons," comprising the list of a fashionable New York or London *ménage*.

It is vain multiplication of titles after all; they are all servants and they all serve us. Now one human creature, however wealthy or great, is too limited a field to offer full scope even to his own activities, to say nothing of those of numbers of other people.

That is why the evolution of service from the cowering slave of earliest times, who did all things he was told as far as his powers went, to the haughty lady's maid who will not do the work of the parlor maid, or any other maid or man whatever, has produced no higher result. All these complex activities are bent to serve personal needs, a hopeless limit.

Understand clearly that the effect of service upon character is not the effect of the thing done—it is the effect of the special condition or relation in which it is done. Xerxes' soldiers and the Greek soldiers were both fighting. The difference was between bond and free. The effect of service upon character lies in the relation, the abnegation of one's own will processes and power of judgment, and the establishment instead of an artificial connection between one mind and another body. It is an absolutely artificial relation; it cannot grow into that perfect automatic action which characterizes high organic development. It simply hobbles two or more human beings together, and reduces their progress accordingly. So thoroughly has this been proven in the advancement of the world, that whereas all labor was once the slave's, now we have left in all our field of industry no personal servitude save in the household. The house servant and the body servant are all that remain to us from the time when the pyramids rose from the plain, and nation after nation fell because its internal organism was out of order; the co-ordinate activity which is national life being wrongly carried on.

We complain of our servants for manifesting certain traits which are just as inevitable a product of their position as are their complements in us a product of ours. But one trait is developed in both master or mistress and servant, a certain irresponsibility which is a fruit of the curious relation. The servant is a mindless body, as it were; the master or mistress a bodiless mind. Left apart, they are both lazy; together, the master is lazy-bodied; the servant lazy-minded. And they are both inclined to be cruel, as a fruit of that irresponsibility.

It is a dangerous thing to interfere in orderly natural processes; and the relation of master and servant does so interfere to a large extent.

So stands domestic service in our social economy,—the last survival of the lowest form of human labor. By its presence it deteriorates other forms of labor; the sense of degradation being still kept in mind; the child growing up in an atmosphere where "menial service" is still a living thought, and by its low order of labor keeps back the household industries, on the further development of which our new progress now rests.

In its present condition, we have a curious deadlock. The increasing complexity of household life has evolved our household industries to a degree where their proper performance demands a higher order of ability than is found among servants. The condition of domestic servitude allows only the development of a certain degree of ability, not sufficient to rightly perform our complex domestic industries. So there we are. When we find a person able to carry on modern household industries, that person will not be our servant. And when we find a person willing to be our servant, that person is unable to carry on modern household industries.

These are the facts.

Before passing on to the kind of labor which is essential to the smooth working of the modern household, I wish to call your attention to some of the secondary conditions of our domestic service system. Note, first, that it is performed almost entirely by women. Now women and men exist in about equal numbers on the earth, and should be monogamously married. The order of industry which puts into a given household more than one woman to serve its

needs robs that woman of a home. What manner of system is that which unhomes half the women of the world to serve the other half?

Every woman should be free to marry, to become a mother, and every mother should have a home of her own for her children. This cannot be for those who occupy our smallest, poorest rooms, go in and out the back door, and do the work which none of us will do when we are able to hire it done. Our system of household service is not only low in its industrial development and limited by the condition of servitude, but it is also essentially a celibate system, and as such essentially wrong. The "house maid" is rightly called, maid she is expected to be, or possibly widow, but marriage and motherhood are, as a whole, incompatible with the position of servant. The "housewife" is the mistress and she is served by maids, direct survival of the time when residence with the lady of the manor was the only safe life outside the convent, and service the condition of residence.

The only amelioration to this condition to-day is the stinted and grudging allowance of time to visit family and friends, or a room to receive them; and the commonly resented marriage of the "maid" whose time and strength are deemed so much better used in our service.

Observe the effect of this system on the development of household industries and arts. What progress can be expected in a young woman of a low type, in work which she only does for a little while and discontinues once for all on marriage? It keeps the grade of labor down to the level of the least developed half, of the least developed class, in its least developed age.

Another secondary condition of our domestic service

is the isolation of the maid and its results. The members of the household are no "company" for the maid. She lives in social isolation, one of the most painful conditions of existence. It is for this reason that it is so much easier to *keep* servants when we have more than one.

Another feature is on the side of the mistress; the constant presence in the family, the most intimate and incessant association of one who is and must be a stranger within our gates; an alien element whose influence on our children must be constantly watched, at whose entrance conversation ceases or is checked, and whose presence is in open contradiction to that privacy on which rests the essential thought of home.

From the employer's standpoint, there are certain very marked advantages in domestic service. First, and most obvious, is the fact that wages are not only relatively but absolutely high; for, aside from actual wages, there is also board, lodging, fuel, light, and laundry, all of which the worker in trades must provide for herself. No capital is required, as in the case of type-writers and sewing-machine workers; nor is the girl, under our prudent system of taking untrained domestics just landed, forced to spend anything in preparatory training. Professor Lucy Salmon, of Vassar College, collected statistics from three thousand employing families, and found that on a wage of $3.25 a week it is possible for a servant to save annually nearly $150, "in an occupation involving no outlay, no investment of capital, and few or no personal expenses." The wages paid are relatively higher than those in other occupations, for in Professor Salmon's comparison of the wages received by 3000 employees in the country and the same number in the city, it was

found that of 6000 teachers in the public schools the average salary actually paid is less than that paid to the average cook in a large city.

The second advantage claimed for domestic service from the employer's standpoint is the healthfulness of the work, which includes not only regularity, but also variety. A third alleged advantage is that a home, in externals at least, is insured to the worker. The fourth advantage is that a training which makes the worker better fitted for married life is certain. And the fifth alleged advantage is that for those who like it the work is easy.

Such are the arguments urged upon the army of underpaid, half-starving needlewomen in our great cities, and on that other army in factories and shops, who are implored to consider the superiority of the advantages offered by domestic service. Astonishment that these armies of women prefer the factory and the shop is unending, nor is it generally believed that any good and substantial reason for such a choice can exist. As a means of arriving at some solution of the problem, some six hundred employees of every order were interviewed under circumstances which made their replies perfectly free and full; and the results of these interviews tallied exactly with others obtained by an inquiry in the Philadelphia Working Women's Guild, a society representing seventy-two distinct occupations. A report of this inquiry was made by Mrs. Eliza S. Turner, the President of the Guild, a summary of which was given in the *Working Womans' Journal* published by the Guild. In the situation as a whole, the objections from those who had tried it, and those who had been urged to try it, were practically the same. Kind as mistresses might be, there was

still the loss of personal liberty and the social ostracism which goes side by side with it, and no training-school on earth is likely to alter these facts, or make the self-respecting American girl accept the form of labor which bears, in spite of our best endeavors, the stamp of degradation. Certain stipulations were made by all, some laying stress upon one point, some upon another, but the general average uniting in those that follow:

1. A definition of what a day's work means, payment for all over-time required, or certain hours of absolute freedom guaranteed, especially where the position is that of child's nurse.

2. A comfortably warmed and decently furnished room, with separate beds if two occupy it, and both decent place and appointments for meals.

3. The heaviest work, such as carrying coal, scrubbing pavements, washing, etc., to be arranged for if this is asked, with a consequent deduction in wages.

4. No livery if there is feeling against it.

5. The privilege of seeing friends in a better part of the house than the kitchen, and security from espionage during such time, whether the visitors are male or female. This to be accompanied by reasonable restrictions as to hours, and with the condition that work is not be neglected.

6. Such a manner of speaking to and of the server as shall show that there is no contempt for housework, and that it is actually as respectable as other occupations.

It will be seen at once that, save with the most intelligent and fair-minded mistresses, there is not the slightest chance of carrying out these very simple stipulations, and that thus we find ourselves precisely where we were in the beginning.

At this point, it must again be said that this is one of the vexed questions of modern life; that hardly any two mistresses agree as to the facts and their practical or ethical bearing, and that it has been and remains almost impossible to look at the matter impersonally. Volumes have been written, and volumes more will be written, only a few of which have any real right to a hearing. One of the best considerations of the matter has been written, by Professor Lucy Salmon; but even her work, as she herself recognizes, has sharp limitations. The labor bureau reports of the various States, led by that of Colorado, have but just begun to investigate general conditions. In the meantime, though a very large proportion of American families keep no servant, the reports of the last census give the number of women engaged in domestic service as over a million, the lowest rough estimate of the aggregate wages paid, being $160,000,000, and the support received in addition to this money wages amounting to about as much more.

It is through the hands of the domestic servant that a large part of the finished product of other forms of labor must pass, and the economic aspects of the question grow constantly in importance. A just consideration of all the points involved is infinitely difficult, since even in the face of the damaging facts given us in labor reports as to actual conditions, the mistress who listens answers with profound indignation: "*My* girl or girls always had this, that, and the other."

Drop personal pronouns. It is not the particular instance, but the general, that regulates conclusions, and the sociological student and collector of facts must have the final voice. It is quite plain from the investigations of the Labor Bureaus that domestic service is

in many points more undesirable than any other occupation open to women. The Labor Commissioner of Minnesota takes pains to state every advantage of the domestic over the general worker, and adds: "Only a fifth of those who employ them are fit to deal with any worker, injustice and oppression characterizing their methods." Figures and detailed statements bear him out in this conclusion.

The commissioner for Colorado gives even more details, and comes to the same conclusion. A very elaborate presentation of facts for both employer and employed was given at the Domestic Science Congress in connection with the World's Fair in Chicago in May, 1893, at which every phase of wrong and remedy were discussed. The sum of the remedies suggested consisted in, first the formation of bureaus of employment in every large city; second, fixed schedules of payment; third, full preparatory training.

A keen observer of social facts has stated: The intelligence offices of New York alone receive yearly from servants over three million dollars and are notoriously inefficient. This sum, or even half of it, would provide a great centre with training-schools, lodgings for all who needed them, and a system by which fixed rates would be made according to the grade of efficiency of the worker. Till household service comes under the laws determining value, as well as number of hours and all other points involved in the wages of a working day, it must remain in the disorganized and hopeless state which at present baffles our housekeepers and deters self-respecting girls and women from undertaking it.

An organization like that suggested is possible for every city, and each should have its great agency, cor-

responding to the Bourse de Travail in Paris, but even more comprehensive in scope.

Co-operation, or combination in such limited degrees that private home life will not not be infringed upon, must necessarily make part of such a scheme, but details as to these possibilities must be deferred to a time when full treatment can be given.

Very positive indications of change in the popular conception of domestic service come from many points. The National Household Economic Association, formed in 1893, a full account of the work of which is given in the Appendix, has had much influence in these directions, and its branches in many of our cities and larger towns, are all doing efficient work in altering present standards and insisting upon training for mistress and maid alike. Philadelphia has a Household Economic Section in its civic league, and has printed a leaflet of *Standards of Work and Wages in Household Labor*, which goes far toward clearing the air. Syracuse, New York, is busy in the same lines and has accomplished good results. New York announces a Servants' League for protection against the extortions of the intelligence office, and self-respecting servants are quietly studying the question and seeking to understand the ethics and the political economy of the subject, two things that do not always go together. A long list could be made of points where intelligent women are forming leagues for themselves and for household helpers, but for each and all is the enormous difficulty of dispassionate consideration of a thing that takes hold upon the very springs of life.

Australia, that wonderful country which seems to be solving practically problems that baffle civilization at all points, has outlined a scheme that promises admira-

bly well. The word servant with all its detested implications and associations is dropped entirely, the substitution being Household Employees. Recognizing the necessity of the many hours of labor required by our present system of life, two shifts of employees exchange, one coming on from 5 or 6 A.M. to 2 P.M.; the other, from 2 P.M. to such evening hour as is fixed. Training schools are included, and all labor is graded with a fixed rate of payment for each form and for all overtime. It is shown that under such system the cost to the householder will be no greater, and the comfort and efficiency of service enormously increased. On the side of the employee will be the personal independence so often lost and so desired, and a standard so much higher, that it is claimed a far more intelligent class will gladly enter the ranks of household employees.

In England sore trouble in these directions is giving rise to a whirlwind of discussion, and an admirable pamphlet which has had wide circulation, *Democracy in the Kitchen*, by Mrs. H. Ellis, contains an earnest and most suggestive summary of the situation and some of the remedies.

At this point we are forced to drop the subject. We have the pros and cons in as compact fashion as possible, and I give you such authorities as may be said to have any weight; all other phases, historical and otherwise, waiting the time for larger treatment. I shall add only that out of such study as ours will grow both conviction and action. At no distant day the domestic employee will be asked to show diploma and license, and from servant shall pass through all the transitions of employee, artist, and professor, to that high ground toward which all service tends, and this matter of do-

mestic employment shall take the place that rightfully belongs to it.

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CHAPTER XII.

ORGANIZED LIVING.

Law of Organization in Individual and Species—Organic Evolution, Racial, National, Civic, Domestic—Primitive Conditions of Household Economy—The Woman's World and the Man's—How to "Keep the Boys at Home"—Survivals and Rudiments—Effects on the Brain—Strain of Contending Eras—Relation to Progress—Home Influence—The Matrix of Civilization—How We Really Live—Flat, Club, Hotel, and Boarding-House—Reaction and Compromise—Lines of Development—Scientific Prophecy—Asa Gray and his Unknown Butterfly—Our Possibilities—The Higher Education and the Higher Life.

BRIEF and incomplete as are the lines of thought we have thus far followed, they must, I am certain, speak to us of its vital importance and convince us that Household Economics and Social Economics can in no wise be divorced. The present condition of things in all the phases we have sought to understand, is a bar to progress. Its study is one of the first duties of civilization. A National Commission to inquire into Household Economics, would be as important and useful as any bureau of inquiry yet instituted. Perhaps we may see one yet.

Diverge and develop as we may, the place we come from still modifies us all. The house in which we

are born, its conditions and environment, mark us for life in brain and body. Let the social activities of man and woman be what they may, while their domestic environment remains as it is to-day, our progress is rigidly limited.

At this point let us summarize briefly the thought we have already followed. Progressive organization is the law of life, the upward line of evolution.

Organic evolution is the process by which all forms of life develop, and this means not merely differentiation and specialization, but relation. The interrelation of organs is an essential condition of their development. In social evolution this is now made clear by Sociology. A people must develop certain complex and interdependent industries in order to grow to power and distinction. Mere numbers of people do not make a great race. It must be related, vitally interdependent; so commonly connected as to have some sort of common consciousness before they form a distinct racial power.

This racial evolution demands a commensurate national evolution, the growth of the administrative function being like the growth of nerve and brain power in a physical organization.

Civic evolution calls for the same process. A city is more than a number of housed people within a wall. A city is a little organism in itself, with its necessary structures and communicating streets and public buildings; its necessary functions internal and external. And within the city are the households, each a little organism in itself, and obeying the same law of evolution.

All these outward forms of human life are as vital, as essential, as actually connected with the soul and man and its true growth, as is his immediate material

body. The line is unbroken, the soul forming the body first, a vehicle of expression, a means of growth. Old Chaucer knew it and made his statement in a day when it had small meaning for those who read :

"For soul is form and doth the body make."

Given the bodily form, the soul continues to find expression and growth through clothing and furniture, house and city. This last, the city, is the limit of material expression in humanity, and through the organic activities of body, home, city, and state, we reach the largest human entity.

The ideal city, the city to come, and that we shall make possible, is the certainty of that larger thought which the twentieth century is to actualize as no other has ever more than dreamed of doing. Drummond is no dreamer. He is a practical worker for his own generation, but in his *The City without a Church* he has given the very heart of the thought with which this work ends and begins ; that the life of man perpetually enlarges its scope and plan, and that from the individual the passage must forever be to the general, the individual finding his best development where the general welfare is the general concern.

The household, standing nearest to the body, lowest or highest as we may choose to consider it, is thus essentially limited in many ways ; rightly and nobly limited, in ways which work no more restriction than do our bodily limits. But the household economy, being in its nature part of the social organism, economy, should not be limited by the house. The cradle of industry must not seek to retain industry in its cradle, and that is precisely what our mistaken idea of house-

hold economy does to-day. It is surcharged with functional activity which does not belong there, which has long since reached a stage of development demanding far wider, deeper, and more scientific administration and execution than is possible in the private home.

There was once in the world but one place of living—the home. In it were all things done and enjoyed. It produced what it consumed, and consumed what it produced. Long ago that stage ended. There are now in the world two places of living for the larger part of civilized humanity—the home and the shop. The shop makes what the home takes. All our deepest and widest and subtlest ranges of mechanical production, bridges, ships, railroads, vast mills, founderies, stores, are all to keep in motion activities which culminate in home consumption.

The shop produces and the home consumes. In this it still stands for the primal home idea ; the thought in that first beginning of home when it was but a hole in the ground to eat and sleep and hide in. All the beauty and sanctity and power of the home follow on this primal thought of security, shelter ; a place in which to take food and rest, and gather strength for outside use.

It is at this point that the modern home fails of its main function, in that it persists in combining home and shop. Any form of persistent industry is foreign to the essential idea of home, the place of rest. But the man's home to-day is the woman's shop wherein she perpetually demonstrates the old song :

> "A man's work is from sun to sun,
> But a woman's work is never done."

The growth of household industry from the simple

consumption of meat and fruit to all the complicated bustle of the kitchen, calls for the extension of that kitchen industry outside the home.

Let us by all means continue to eat at home. To eat together under the shelter of one's own roof is still one of the integral parts of the home idea. But there is no more need for the immediate presence of the cookshop than for the immediate presence of the butcher shop, the flour mill, and the dairy.

The preparation of food at home save in the most limited sense, as for instance the use of the chafing-dish or the making of fresh tea, does not belong to the advanced civilization of to-day. It belongs to the era when that preparation was a simple matter, easily within the pleasurable exertion of the family itself. That should be our limit still. If we wish to prepare food at home, its preparation should not require more than an hour of the time and a tiny portion of the vital force of the family. If it is otherwise, then we are expending high forces on low functions; a process as wasteful to the woman who performs it as if all our ranks of world up-lifting men spent their forces in the low functions of self-defence and self-support.

We have organized our defensive function into the honorable specialization of military and civil service. We have organized our self-support into all the complex activities of farmer, grazier, fisherman, butcher, orchardist, and so on, with the manifold distribution of their supplies.

This is in the man's world. In [illegible]
no organization [illegible]

live and work, remains inorganic, detached, undeveloped ; a survival of past ages.

It is this underlying condition which makes one of the deeper reasons why it is so hard to "keep the boys at home." Consider the man's world as compared with the woman's. In the developed industries, the extra-domestic industries, every man has his kind of work and does it, and all kinds of work are interrelated. Friction and confusion are largely eliminated. Everyone is compelled by the nature of his position to "mind his own business," and there is room for expansion and the noble sense of mutual usefulness.

In the undeveloped domestic industries, one untrained woman tries to work at a dozen trades at once, and, if she is the mother too, at a constant sacrifice of her highest function. The growing boy as he begins to enter manhood feels this difference without understanding it ; and in his scorn of home life and desire to escape from its restrictions, vaguely voices his underlying consciousness of the lamentable division between "the home" and "the world."

The home is a most essential part of the world, not a different thing, yet our thought and modes of expression would seem to make it so. Its present separation, with all the evil consequences to both, is due to the arrested development of our household economy. Present with its bodily form ; apparently moving with the age, the household carries within it conditions so primitive that the true growth of social [illegible] at every step.

[illegible]hold presents both survi-

singular organism, half fossil and half sprout. Small wonder then that the family, over whose future speculation is incessantly at work, the family, which is the soul of the household body, is perturbed and pained, shocked, injured, at times destroyed. A large cause for the rising sea of family trouble which forms half the world's misery comes, not from the wicked world outside, but from within the sheltering walls of the home we love so well and understand so ill.

To live in two kinds of life at once ; to spend one's days in the nineteenth century, and one's nights in the twelfth ; to come home from the stress and press of one's fractional share in the widely differentiated activities of the world to one's full half of the undifferentiated and discordant activities of the home —this makes life harder for man than it has any right to be, than it needs to be, and so limits both his growth and his usefulness.

And for the woman to live only in one kind of life and that of a prehistoric nature ; not to have any share at all in the activities of the age she lives in ; to force her present-day powers to the steady performance of past-day tasks ; what for her ? She lives in touch with the vivid life of the modern world, yet her work carries the burdens of the past, and her growth and usefulness are not only checked but distorted.

For this inequality no man can be held responsible. One of our deepest thinkers, Lester F. Ward, has written what may stand as summary of the whole condition. Studying the conditions governing the life of woman as a whole, he decides :

"If there is an evil in the world for which nobody is to blame, it is the inequality of the sexes. If there is an illustration of the victims of an injurious system countenancing and upholding

that system, it exists in the case of women and the system which holds them down. The mere handful of protestors who have become aroused within the past few years to a vague sense of their true condition, is but the very embryo of the movement which would be required to accomplish the emancipation of women."

It is not so much experience as philosophy which is agitating the question. The victims of the system are usually silent, or, if they speak, it is but the bitter language of discontent, unsupported by the philosophic analysis of the subject, which can alone give weight to their utterances. The greatest champions of social reform are, and always will be, those who possess the capacity to grasp great social truths and an insight into human nature and the causes of social phenomena deep enough to kindle a genuine sympathy and a sound, rational philanthropy.

"This phenomenon, like all others, is the result of causes operating through innumerable ages, and for which there is no more responsibility than there is for the physical transformations which species undergo from the operation of similar causes during still more immense periods. Although the results may be bad and entail evil upon society, though they be irrational, absurd and pernicious, they are none the less due to causes sufficient in their time to produce them, and their genesis or true explanation, though perhaps too obscure for man ever to unfold, would still be traceable to their earliest origin if all the circumstances could be known.

"A state of society if it be bad for one class is bad for all. Woman is scarcely a greater sufferer from her condition than man is, and there is, therefore, nothing either improper or inexplicable in man's espousing the cause of woman's independence. The freedom of woman will be the ennoblement of man. The equality of the sexes will be the regeneration of humanity. Civilization demands this revolution. It stands in the greatest need of the help which the female sex alone can vouchsafe. Woman is half of mankind. Civilization and progress have hitherto been carried forward by the male half alone.

Labor and production are now suffering from the same cause. It is high time that all the forces of society were brought into action, and it is especially necessary that those vast complementary forces which woman alone can wield, be given free rein, and the whole machinery of society be set into full and harmonious operation." [1]

Bear in mind always that this is no protest against home duties. They are not only important, essential, but lovely and noble in their place. My work would be utterly lost if I have failed to show the magnitude and value of these functions, but it must be plain that their degree of development and method of performance are below the present grade of civilization.

This in the deeper and more scientific sense is the status of Household Economy to-day. Itself of enormous importance, its methods are so defective as to constitute a steady check on progress. For the better understanding of the subject, the course these lectures should precede and which they outline is mapped out.

By a wide study of the existing condition and its historic forerunners, we shall be able at least to know why, in all this smooth and rushing stream of progress, the household wheels still creak so noisily and turn so hard. It is as though some primeval ox-cart were brought in to connect with the railroad system, or the current of trans-continental travel left its vestibuled trains to ford some river on the way.

A vast amount of the weakness, weariness, and nervous prostration of our women is due to this underlying cause. It is not the time they spend that hurts them nor the special strength involved. It is that the modern brain, enlarged and subdivided, focused on great issues and great processes, has to put itself back

[1] *Dynamic Sociology* by Lester F. Ward. vol. i., pp. 656–57.

into the lenses of a thousand centuries ago. It is the weight of all the ages that pulls our women down—it is the incongruous pressure and presence of fossil customs—they break utterly and die all unknowing under the strain of contending eras.

The effect of this condition upon the progress of the world is felt in two ways. One is through the confusing and retarding effect of these left-over household industries and methods on our social industries and methods. The other is through the effect on the brain of our women, our mothers, and through them on the brain of the race.

If our household industries were in the hands of men, their deteriorating racial effect would be largely reduced. On the other hand, if our household industries were in the hands of men, they would not remain for a week in their present amorphous and disordered condition.

It is because they have remained in the hands of women and in the limits of the home, and because of the sociological position of womankind, a position as to which these pages can have but the word already quoted from *Dynamic Sociology*, but which has had constant effect on household economy, that the case is as it is.

That Household Economics and progress are in closest relation must be at least indicated by all that has gone before. The fact we must face and consider steadily is that the present condition of household economy tends to produce and develop the kind of brain which can contentedly and effectively leap from one occupation to another many times a day; and occupations differing not only in kind but in degree.

Where in the departments of a large business the

various employees are given tasks rigidly defined, thus carefully preserving the brain adjustment necessary to each phase of activity—it being a business maxim never to put a twenty-dollar man to do a ten-dollar man's work,—the departments of housekeeping in its average condition require of one woman the widest and most subtle administrative ability, the most laborious and disconnected executive ability.

These qualities are diametrically opposed. The ability to patiently perform an endless repetition of minutely differentiated tasks, like, for instance, the washing of dishes; and the ability to keep all the running machinery of a household in order and all of its varied supplies in constant renewal according to the dictates of economy on the one side, and all the conflicting tastes of the family on the other,—these two orders of ability are not to be found together.

The better able the brain is to content itself with disconnected tasks and details, the less able it is to manage connected generalities.

To insist on the two and yet maintain life, provides us with a low order of woman who can do all these things fairly well, but no one of them well enough to realize how defective the others are.

The average "capable" woman, what the New England Yankee knows as "a woman of faculty," is like one of those *multum in parvo* pocket-knives including in itself a multitude of tools not one of them first class. Greatness demands specialization. The woman thus produced to us is the "market" for most of the products of the world, the judge and critic of the liberal arts; the patron of much of the fine arts, sciences, and professions. As she is must be largely those who minister to her.

This compressed and many-sided yet disconnected and undeveloped brain she transmits to all the world; to the more active factors in our civilization; to the men who make our books, our pictures, and our laws.

The smallness and narrowness, the lack of true public spirit, the penny wise and pound foolish tendencies of the popular mind, come largely from the early and unceasing influence of our arrested development in household economy.

A matter more seriously important could hardly present itself to the students of sociology. Our social economy is largely conditioned upon the existing quality of the people who administer it; but here is the more intimate field of Household Economics directly affecting the quality of the people.

In its physical attributes of warmth and shelter, light, air, water, and food, Household Economy moulds the bodies of the race. Through its logical construction and beautiful decoration, and the logical and beautiful performance of its essential functions, or their opposites, it moulds the mind of the race. Through the nature and condition of the family itself, so largely modified by the economy of the household, it moulds the souls of the race.

Home influence is a larger thing than the most ecstatic sentimentalist has ever claimed for it. It influences the babe unborn; the child absolutely, in the years which count most in the formation of character and tendencies; the youth and the adult through every step of the long journey.

The influence of our defective Household Economy on children is, in itself, a study for years. From this personal effect, on and up into the social influence of the lines thus formed; the constant modification of all

life by the interaction of persons every one of whom is a product of the home; the steady outpour upon life of the thought and feeling generated by the place where we live; the stream of art and industries, all rising in the home and pouring out to flood the world; —this it is which makes the household, now as always, the matrix of civilization. Civilization was born from the home. From the home it is renewed, and out of the home must come the influence that will make, not the farce we find it at many points to-day, but the enlightener and uplifter of all mankind.

This is the necessity, and yet every thinking woman, above all, any woman who has dealt with her own sex as workers and in large numbers, recognizes the fact that not only among the least educated and cultivated but in as great or greater degree among the comfortable, well-to-do classes, exists a spirit that one is tempted to name organized obstruction.

Women in clubs and councils, and these represent the largest intelligence and training, are very apt to congratulate each other in periodical summaries of woman's progress that in all fields an open way seems to lie before her. Four hundred trades are at her option and artistic and professional life receives each year a larger and larger number of recruits. Now and then comes a note of sorrow and dismay at the disabilities that still hedge about the woman in trades. Yet at this point, where reason would seem to demand a question, nobody goes back of the present era and asks how it is that for thousands of years she has allowed every industry which she originated to pass into the hands of men. So far as invention has a history, it is always the man who forces the woman to give up her heavy stones for grinding and try the

mill; to use an improved loom; to accept the cook-stove instead of the open fire and its back-breaking system of cranes and pots; the sewing-machine instead of the needle—in short, all modern conveniences.

What woman has done with the sewing-machine she has done with most inventions for her benefit—turned them into new instruments of torture. The sewing-machine has enabled her to put a hundred tucks where once she put three, and every garment is made to hold a wilderness of stitching. Complication and always more and more complication has become the order of living, and as if in mockery, labor-saving inventions crowd our houses and demand a new form of skilled labor to take care of them.

From the beginning of homes or workshops women have steadfastly labored at complication and men at simplification. The fact that a man is successful in business means that he knows how to adapt means to ends. His office is a model of compactness; everything at hand that can make work swift and easy.

In every trade, the worker, as dentist or carpenter, has his tools in perfect order and arranged close at hand so that every motion will tell. The kitchen of a dining-car or of a great ocean liner is a model of condensed convenience. And while the man worker in these lines is condensing his space and making every step and stroke tell, the woman worker in the same fields has only in scattered instances planned to the same end, but goes on in the same old helter-skelter fashion.

Day by day life complicates. The daily paper brings the ends of the earth to our door. More work to be done, less and less time to do it in, since other work waits and calls. Complexity is the law of being for this complex creature we call man, nor is a return to

primitive simplicity either possible or desirable save at certain points. Men have found out many inventions. They have not yet found out how to make their uses a unit, and let all share the benefit alike.

Modern housekeeping represents an enormous waste of force, waste not only in expenditure but in results. Each kitchen has its Moloch in the cook-stove, before which "a passing train of hired girls" incessantly do homage. The coal that cooks for six could as well cook for sixty. The anguish of the family wash day, the weekly martyrdom of the housekeeper, has no more place under a civilized roof than the weaving of cloth or the salting and curing of meats. For the poor it is an even more wasteful system since they must buy in quantities so small that they pay double and treble the sum the article is worth.

"We have no time for anything!" is the cry of all women, yet not one is willing to submit to the personal trouble and possible discomfort involved in a new experiment or to seek to work it out for the world, as it must be worked out.

It is not in my opinion co-operation that is required since families are intended to live their own lives, a sufficiently difficult operation as it is. But *combination* in a business sense and with business methods could reconstruct the housekeeping of a community. It is time that this business of cooking and cleaning for humanity should be transferred to the hands of experts. The woman need have no lack of occupation, for she can find it in genuinely caring for her family, teaching and training as to-day she cannot. As to cooking, the kind which too many of us have been made to know is warranted to kill and not to cure.

Given a perfectly managed, carefully administered

kitchen and laundry for every block of houses in the city or town, and no matter on how simple a scale, it means not only more time for the higher aspects of living, but more money to spend in real things. Living, as we get it in our isolated, individual system, is organized waste and destruction, and women who oppose or refuse to even listen to calm and rational discussion as to better possibilities, what are they but organized obstruction?

All this means time, and for the present we must do what we can. Naturally we face at once the question of education, relying upon that to undo all the evils brought about by lack of knowledge. But here again, education and mental training are wide apart, and this every true teacher knows. A child may pass through every grade of the public school yet emerge untaught and untrained for any real issue of real life.

Do I want then that Household Economics should be part of all school and college training? Never in the mere apprentice sense. The trade school and apprentice idea, that of going through all the steps every day mechanically till the learner cannot help doing them right, hold the old thought of the work to be done. Science and the spirit of the age have taught new and better methods. The principles of all trades, *i.e.* the fundamental laws of matter and form, are taught in a few months with just enough practice to illustrate the principles.

Mrs. Ellen H. Richards, known as chemist and one of the highest authorities in the country on all questions of Household Economics, sums up the subject as compactly and briefly as it can be done.

"First, the subject should be put into the college curriculum on a par with the other sciences, and as a

summing up of all the science teaching of the course, for chemistry, physics, physiology, biology, and especially bacteriology, are all only the stepping-stones to sanitary science.

"Therefore, in the junior or senior year, after the student has a good groundwork of these sciences, there should be given a course of at least two lectures a week, and four hours of practical work."

Such lectures as are suggested the present volume has covered as far as possible. The practical work to be done should include:

"1. Visits to homes where the housekeeper has put in practice some or all of the theories of modern sanitary and economic living.

"2. Visits of inspection accompanied by the instructor, to houses in process of construction, of good and bad types, both old and new.

"3. Conferences with successful and progressive housekeepers.

"4. Practical work and original investigation in the laboratory of sanitary chemistry."

Four reasons are given, a square so solid and comprehensive that it may well serve as foundation for all future building.

"First, and in an educational point of view foremost, to broaden the ideas of life with which the young woman leaves college, to bring her in touch with the great problems which press more closely each year.

"Second, to secure a solid basis for improvement. Those of us who have had a hand in reforms know how much work is wasted for want of knowing what has been already done.

"Third, to replace timidity by confidence. The young housewife, who, knowing her own limitations, is afraid of her house and her servants, is likely to come to grief because of the nervous strain she must constantly bear, and I believe that the larger part of our domestic trials arise from the irritability and

exactions of both parties, due to this electrical condition of the nervous atmosphere of the house.

"Fourth, to secure the co-operation of trained women in all sections of the country; for all great reforms need many-sided help."

This is the intermediate stage; the stage that will train women to a power of judgment that will open the door for the larger handling of every question involved. It is not more flats, more boarding-houses, more clubs, more hotels that we require or that the future will see. Reaching from the limitation of the home, we have tried these all and know if we think at all that they are but compromise. The real thing is yet to come.

There is a story of Asa Gray, one of our most distinguished botanists, to whom a butterfly of unknown and undiscoverable species was sent who, after careful examination, wrote that its characteristics all indicated a habitat in which such and such plants would be found. In short that whether anybody knew or not it must have come from a certain portion of Brazil. In process of time, further investigation showed that it had come from precisely this region. The new thought of the home to come is in like fashion a stranger, yet analysis gives us its native dwelling-place no less than the certainty that it is a real creation. The ideal of one generation is the working factor of the next. The ideal is the only real. The timid conservative shrinks back in terror and declares that only destruction lies in the thought of any change. Yet not destruction but reconstruction is the thought.

A stronger home! That is what we want. That is what we must have. There are hundreds of homes where love is law and wisdom chief ruler, and the child that is born into them is sure of all that the highest thought can secure for him in body, soul, and

spirit. But for the unnumbered thousands where love is not and wisdom has never entered !—what shall we do with them ?

Only a treatise on education could answer this question, but there is one thought for the home itself. As the body in which we live is the temple of the Holy Ghost, often defiled but none the less temple, so it is also true that the same power dwells with us in so literal a fashion that every stone and rafter, every tablespoon and paper scrap, bears stamp and signature to eyes that read aright : "The house in which we live is a building of God, a house not made with hands."

This is the stronger home, and in that home may and must be seen all graces and gentleness in thought and word that make the happy illumination which, on the inside of the house, corresponds to morning sunlight outside, falling on quiet dewy fields. Out of such homes neither knaves in politics nor tyrants and schemers in business strife and competition can ever come. With such homes, the golden age already dawning as the new century opens hastens its steps. The stronger home is here.

And for the woman in that home ;—

"A woman, in so far as she beholdeth
Her one Beloved's face ;
A mother,—with a great heart that enfoldeth
The children of the race ;
A body free and strong, with that high beauty
That comes of perfect use is built thereof ;
A mind where reason ruleth over duty,
And Justice reigns with Love ;
A self-poised, royal soul, brave, wise, and tender,
No longer blind and dumb ;
A human being of an unknown splendor,
Is she who is to come."

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APPENDIX.

SO great is the demand for a simple and practical course of Club work in Household Economics, that it seems wise to add to the present volume, two programmes which have been tested in the clubs for which they were prepared. Dr. Mary Green is a well-known physician, whose book on the *Foods of the World* is given in the bibliography of the present volume, and Mrs. Watson is valued authority in the National Household Economic Association. The syllabus of the course of lectures by Professor Allen, of Armour Institute, has also been used by leaders of sections for study in these directions, who have chosen the points appealing most strongly to their special needs.

In addition to these, is given the prospectus and constitution of the Chicago Household Economic Society, prepared by Mrs. Stetson and myself, and compressing into small space, the need and purpose of the work inaugurated by the National Association, under the leadership of Mrs. Laura Wilkinson, its president till 1896, when her place was filled by Mrs. Elizabeth Boynton Harbert. The Association has branches at many points, the most notable work being done in Philadelphia and Syracuse, though Boston leads in the matter of dietaries for schools, and the furnishing of carefully-prepared lunches for their pupils, the leader and authority at all points being Mrs. Ellen H. Richards of the Boston Institute of Technology.

A summary of the work of Clubs has been made by Mrs. Estelle M. H. Merrill, in an article in the *American Kitchen Magazine* as follows :

The Chicago Woman's Club has organized a study class in domestic science, and done a year's work to be continued in

1897. The well known energy and ability which has always characterized the admirable work done by this famous club makes one hope great things from this class.

The Peoria Woman's Club has had, during the past season, but one paper on a domestic science topic, but that was a fine one by Mrs. Alice Peloubet Norton of Newton on "Scientific Cooking." The spirited discussion following the essay showed much interest on the part of the club members.

The Worcester (Mass.) Woman's Club also reports one lecture for the past season: as does the Thought and Work Club of Salem (Mass.), which last hopes however to have a class in domestic science next season.

The Woburn (Mass.) Woman's Club was divided during the past year into seven sections or departments, one of which is devoted to household economics. In February the club had the pleasure of listening to one of Dr. Mary E. Green's valuable lectures, her topics being "Butter, Milk, and Cheese."

The Secretary of the Wellesley Hills (Mass.) Woman's Club writes: "The work done by us under the head of domestic science has been small, simply preparatory to more extensive work next year we hope. A cooking class was formed, and most successfully conducted by Miss Charlotte Wills, assistant teacher of the Boston Cooking School. The course consisted of eight demonstration lessons, which were both profitable and enjoyable, and the enthusiasm shown leads us to anticipate a more active future."

The work accomplished by the Springfield (Mass.) Woman's Club in introducing cooking into the public schools is described elsewhere in this issue of the magazine.

Although the Elgin (Ills.) Woman's Club is devoting all its energies at present to building a new hospital, yet it reports much good work done recently in the field of domestic science, including a course of lessons in cookery; courses in cooking, domestic science and sewing in the Elgin Academy; and a cook-book gotten up by the home committee of the club. On the "Home" days of the club for the past year, the topics discussed were "Our Pet Economies" and "The Highest Requisites of Hospitality." Among the topics discussed in previous seasons were, "Home Amusements," "The Domestic Question," "Co-opera-

tive Kitchens," "Science *versus* Servants," "Effects of Club Life on the Home," etc. These are given here because titles or topics are often so suggestive to other minds.

The St. Johnsbury (Vt.) Woman's Club devoted one day early last fall to domestic science. Three essays were given by club members on "The Evolution of the Kitchen," "Co-operative Housekeeping" and "House Sanitation."

The Alden Club of Franklin (Mass.), on its domestic science day, discussed the work of the National Household Economic Association, the New England Kitchen (the food laboratory, not the magazine), and Cooking Schools.

The New Century Club of Wilmington (Delaware) reports only a class in dressmaking, taught by Miss Alice E. Jastrow of Drexel Institute.

Cleveland Sorosis has standing committees on "Home Making as a Profession," and "Decoration and Architecture of House and Home." Mrs. Martha P. Rose, the present secretary and former president of the club writes: "Our president alway emphasizes the fact that home making is an art or science as great as any profession, and should be honored by the public in like manner." Mrs. Rose modestly refrains from quoting her own annual address, as president, when she spoke of this "Home Making a Profession" department, showing that drunkenness could be prevented in many cases if the cooking was hygienic and the children were properly cared for. "We need for mothers strong and well-balanced minds. Let us make the art of house and home keeping a profession to be learned, and when acquired, let it receive the homage and deference given to the profession of law or medicine."

A very suggestive letter comes from St. Louis. The writer, Mrs. Mattie E. Fischell, says: "We started last year, in our Wednesday Club, an organization known as the 'Emergency Aid,' to do active philanthropic work. The membership in this is largely composed of the club members, but is not limited to that, so we are a distinct organization. This Emergency Aid, in order to further its new plans, has recently started a public kitchen, modelled after the New England Kitchen, but called by us the 'Rumford Kitchen.' We are now about to organize a branch of the National Household Economic Asso-

ciation, which will start with a nucleus of the club members, and then enlist others. There have been no lectures on domestic work or science before the club during the past year, but our science section devoted some time to household sanitation, and kindred subjects, last year."

The Watertown (Mass.) Woman's Club is very young yet, but has begun in the right way. On one of their afternoons during the past year, three members gave very instructive accounts of experiences in keeping house in foreign lands,—England, France, and China.

The Cantabrigia Club, of Cambridge, Mass., has a splendid record in domestic science. Their "Domestic Science Exhibit" of last season is still talked of; and the home department of the present year arranged a very notable course of lectures, scientific and demonstrative combined, given by famous experts. The club had a lecture from Dr. Mary E. Green, also, during her February visit to Boston.

The president of the Colonia Club, of Brooklyn, N. Y., writes:

"We have a home committee, and under its conduct we had an instructive meeting last February, with papers on the 'Water Supply of New York City and Brooklyn,' and a communication, from a 'guest-member' in California, on the water supply of the southern part of that state.

"We had also a paper entitled 'Contents of a Boiler.' This was given by request of a member who knew of a physician who gave patients water drawn through the hot-water pipes from an ordinary copper boiler. The query was, 'Is such water wholesome?'"

Perhaps the most interesting of all the interesting missives received in reply to our letter of inquiry, came from the corresponding secretary of the Lansing (Mich.) Woman's Club. She writes:

"The club was organized in 1874 and incorporated in 1889. In that year we built a home for our use. We have indulged in few lectures on any subject, yet we have not neglected household matters, it having been our general aim to devote one-half of each weekly session to practical matters.

"In February of the present year, we had an essay, the title of which was 'Cookery: the destiny of nations depends on the

way they are fed.' Not having any reliable data on hand relating to that subject, the writer substituted an account of the Chicago experiment in feeding students. We also had a very good paper on the Atkinson oven ; our practical women joined the essayist in approval of this oven, but deprecated the idea of using kerosene oil in washing dishes ! The Rumford Kitchen, too, had its review. We were later entertained with a pleasant talk from Dr. Mary E. Green, of Charlotte, Mich., in behalf of the National Household Economic Association.

"Our programme for the next year, beginning the first of October, '95, will probably contain more on the subject of household economy than it has hitherto done. It is now in the hands of the committee."

If one looks over these reports with an eye to the localities represented and the types of clubs taking up this work, it will be seen that most is done in the Western clubs, and in the young progressive clubs of the East. The older clubs have, for the most part, remained as they began—literary clubs. Thus the New England Woman's Club does no work of this sort at all; and Scrosis, though having a "House and Home" day, devotes it usually to some abstract or theoretical matter, rather than to practical work. The Southern clubs also, with the exception of the Woman's Club of New Orleans, and the interesting new Arundel Club of Baltimore, are mostly literary clubs only. The Arundel, under the expert leadership of the well-known Mrs. Mary Hinman Abel, is doing admirable work.

A COURSE IN HOUSEHOLD SCIENCE.

BY DR. MARY E. GREEN.

"*Home-keeping hearts are happiest.*"

September 8.

1 The building of the home.
2 From cellar to attic.
3 The use and abuse of ornamentation.
4 Home-keeping *vs.* house-keeping.

Heat and air fashion both mind and body.—ARBUTHNOT.

September 22.

1 Physiological effects of light and heat.
2 Different methods of heating the home.
3 Sunshine, the light and life giver.
4 Ventilation and plumbing.

A true cook, be it remembered, is an artist.—THEODORE CHILD.

October 6.

1 The chemistry of cookery.
2 Hygienic values of different methods of cooking.
3 How may our modern methods be improved?
4 How to select and purchase food.

No digest of law 's like the law of digestion.—MOORE.

October 20.

1 Nutritive value and digestibility of food.
2 The advantages and disadvantages of a meat diet.
3 Demonstration—how to select meat.
4 Food value of starches, sugars, and fats.
5 Soups and soup-making.

Beware of such food as persuades a man, though he be not hungry, to eat.—SOCRATES.

November 3.

1 Nutritive value of fish.
2 Oysters and oyster culture.
3 Turtle, shell-fish, and mollusks.
4 The work of the Department of Fisheries (Columbian Exposition).

O green and glorious! O herbaceous treat!
'T would tempt the dying anchorite to eat.—SYDNEY SMITH.

November 17.

1 The hygienic value of vegetables.
2 The proper cooking of vegetables, cereals and legumes.
3 The rationale of vegetarianism.
4 The Aladdin oven.

Blest epicures from every climate pour their gustful praise.
—WM. HONE.

December 1.

1 Milk as a food.
2 Butter.
3 Butterine.
4 Suet, lard, and their compounds.

A dessert without cheese is like a beautiful woman with only one eye.—BRILLAT SAVARIN.

December 15.

1 Cheese, the universal food.
2 Eggs—their food value and proper cooking.
3 The chafing-dish—practical demonstration.
4 The essentials of a modern cook-book.

But happy they, thrice happy, who possess
The art to mix these sweets with due address.
—WM. HONE.

December 29.

1 Maple sugar.
2 Palm sugar, sorghum, and honey.
3 The sugar-beet industry.
4 Jellies and marmalades.

"*Better is oaten bread to-day than cakes to-morrow.*"

January 12.

1 Flour and other prepared cereals.
2 Bread the staff of life.
3 Bread of different nations.
4 The chemistry of bread-making.
5 Macaroni and pastes.

Bear me, Pomona, to thy citron groves.—THOMSON.

January 25.

1 Food value of nuts.
2 Fruits as food and medicine.
3 The fruitarian theory.
4 Healthful desserts.

O, what a thing is man devoid of grace,
Adoring garlic with a humble face!—HERBERT.

February 9.

1 The aromatic herbs.
2 The spices of the Orient.
3 Sauces, flavors and cordials.
4 Chillis and pickles.

Coffee, which makes the politician wise
And see through all things with his half-shut eyes.—POPE.

February 23.

1 Coffee, its history and usage.
2 Tea.
3 Chocolate and cocoa.
4 Mâte.

"*Yes, water shall have every due praise of mine,*
Whether salt, like the ocean, or fresh like the Rhine."

March 9.

1 Water.
2 Pure water *vs.* disease.
3 Water as a cleansing agent.
4 Ice and our ice supply.

Plain food is quite enough for me.—O. W. HOLMES.

March 23.

1 Food of civilized Europe and America.
2 Food of the Eskimos, Laps, and Alaska Indians.
3 Food of the Asiatic peoples.
4 Food of the natives of the tropics.

Nothing surely is so disgraceful to society as unmeaning wastefulness.—COUNT RUMFORD.

April 6.

1 Economy in the use of food.
2 Adulteration of food.
3 The theory of co-operative housekeeping.
4 Household science in the public schools.

"*These trifles lead to serious mischief.*"

April 20.

1 Chemical effect of bacteria upon food.
2 Nature and growth of bacteria.
3 Bacteria as factors in disease.
4 The sterilization of food.

"*Mens sana in corpore sano.*"

May 4.

1 The life and work of Count Rumford.
2 House-keeping in the twentieth century.
3 The science of physical culture.
4 Health and dress reform.

A SEASON'S WORK.

Outline of study to use in Women's Clubs prepared for the National Household Economic Association.

BY MRS. KATE H. WATSON.

SEPTEMBER.

Marketing.—Use of fall fruits, jelly-making, canning, and pickling.

Nutritious food for children. Simple meals beautifully served. Foods eaten to nourish the body and repair the waste, not to "fill up."

Nutritive value of food products.

The selection and preparation of food.

Value of some cheap food materials: Legumes, corn-meal, macaroni, rice, etc.

Why do we cook? Fancy *versus* plain cooking. Use of fats, animal and vegetable.

The five "food principles"; value of each.

OCTOBER.

Science in the Home.—The influence of home on society and state.

Art and utility in the home. Ornamentation.

The kitchen: Light, heat, and ventilation, size and arrangements. Ranges, Aladdin oven, and chafing-dish. Utensils and their care.

Dining-room: Table ornamentations, china, silver, and glassware.

Bedroom, guest-chamber, conveniences and care of each.

Bathroom and closets.

NOVEMBER.

Suggestions for Thanksgiving.—Marketing and table decoration for Thanksgiving Day.

Selection, care, and preparation of meat, poultry, and fish, with the nutritive value of each.

Care of food in winter. Foods that can be kept on hand in cold weather. Value to the housewife of canned and dried meats, fish, fruits, and vegetables.

Value of nuts and grains. Waste and economy in the home. Waste of time and strength.

DECEMBER.

The Christmas Time.—Gift-making and gift-giving.

A plea for the truly beautiful and useful in the home.

Home development as an agency of social and moral progress.

Food for invalids. The invalid's room.

The food we eat and the "food we breathe."

Good cooking as a civilizing factor and moral agent.

Demoralizing and devitalizing tendency of impure and badly cooked food.

JANUARY.

Laundry.—Conveniences. Soap, starch, and blueing: the use and abuse of each.

Washing and care of house linen.

Underwear: Knitted or woven, silk, lisle, and cotton.

Embroideries, white and colored. Silks and fine cottons.

Washing of fine woollens, blankets, and bedding.

FEBRUARY.

Question of Dress.—Textiles. Relative value of materials.

Dress as an object of industrial art.

Relations of clothes to human life.

Utility and beauty in dress. Economy and extravagance in dress.

Dress in its relation to beauty, health, comfort, and morality. The trinity: construction, ornamentation, and color.

Selecting and care of clothes. Law of fold centres.

Underwear, stockings, shoes, millinery. Sewing: Its relation to other arts. Utilizing materials at hand.

MARCH.

During the Interregnum.—Preparing summer work. Making, and making-over gowns and summer clothing.

Buying and making house linen and bedding. Marking and care of each. Pressing and cleaning.

The annual cleaning. The art of scrubbing. Scientific cleaning. Any woman can (not) clean, but it takes a nice woman to keep clean. Personal cleanliness.

APRIL.

Art Outside of the Home.—The backyard and "shed." Cleanliness of the yard and surroundings of the home. A plea for plants and vines.

Air, light, and sunshine in the home, the best disinfectants.

Care of garbage and waste.

MAY.

The Science of Cooking.—Care of food in warm weather.

Transmission of disease by food.

Summer beverages. Water and ice.

Value of salads as a summer food. Salad dressing.

Milk and its products.

Summer jelly-making.

Care and preparation of vegetables and small fruits.

A plea for the market man. Care of food supplies in the market and grocery.

THE CHEMISTRY OF FOODS.

Syllabus of a Course of Eight Lecture-Studies.

BY THOMAS GRANT ALLEN, M.A., Associate Professor of Chemistry, Armour Institute, Chicago.

I. General Introduction.

A. Change.
 1. Chemical change. Ex., souring of milk.
 2. Physical change. Ex., melting of butter.
 3. Chemistry deals principally with changes.
 4. Affinity the cause of chemical change.
 5. The physical forces, heat light, electricity, vital force, etc., are the agents which initiate or modify chemical change. Ex., yeast and dough ; fading colors.

B. Composition of substances.
 1. Substances mixed and substances combined. Ex., charcoal and water, and sugar.
 2. Compounds and elements.
 a Some elements.
 (1) Oxygen. 1-5 of the atmosphere, 1-2 of the earth's crust, 8-9 of water, 3-5 of the body. Properties and uses—supports combustion and respiration.
 (2) Hydrogen. 1-9 of water, 1-10 of the body. Forms a considerable proportion of all animal and vegetable substances. Properties and uses.
 (3) Nitrogen. 4-5 of the air, contained in all animal and vegetable substances. Properties and uses.
 (4) Carbon. 1-5 of the body, contained in all living things. Properties and uses.
 b Some compounds.
 (1) Water. Composed of hydrogen and oxygen. Properties and uses.
 (2) Carbon dioxide. A compound of oxygen. Formed by a combustion and respiration. One of the final products of decomposition of animal and vegetable substances.

C. Classification of chemical compounds.
 1. Acids, *i. e.*, sour substances. Ex., vinegar.
 2. Bases, *i. e.*, substances which destroy the sour taste of acids. Ex., ammonia,
 3. Salts, *i. e.*, substances formed by the union of acids and bases.
D. Oxidation.
E. Reduction.

II. Uses of Food and Classification of Food Principles.

A. Uses of food in the body.
 1. The body needs food :
 a To build up and develop its tissues.
 b To repair the waste.
 c To produce heat and energy.
 2. How these results are attained by the consumption of food.
 a Food is converted into blood and lymph, which bathes the cellular elements of the tissues. The cells assimilate the food thus furnished them, grow and multiply, thus increasing the volume of the tissue in the young and repairing the structure in the adult.
 b Food produces heat by being oxidized, or burned up in the body.
 c Food produces energy by building up muscle.
 3. Advantage of variety in food.
 4. Importance of cooking food.
 a Renders it more palatable and digestible.
 b Destroys the germs of disease.
B. Classification of food principles.
 1. Incombustibles.
 a Water.
 b Mineral matters.
 2. Combustibles.
 a Heat producers.
 (1) Hydrocarbons :—Fats and oils.
 (2) Carbohydrates :—starch and sugar.
 b Flesh and energy producers : proteids.
 3. Food adjuncts.
 a Beverages.
 b Condiments.

III. The Chemistry of the Human Body.

A. Composition of the body.

1. The ultimate constituents comprise some 15 or 16 elements. These exist in about the following amounts for a man weighing 148 lbs.

Oxygen	92.4 lbs.	Calcium	2.80 lbs.
Hydrogen	14.6 "	Potassium	0.34 "
Nitrogen	4.6 "	Sodium	0.12 "
Chlorine	0.12 "	Magnesium	0.04 "
Fluorine	0.02 "	Iron	0.02 "
Carbon	33.30 "	Manganese, Lithium, Silicon	Traces
Phosphorus	1.40 "		
Sulphur	0.24 "		

2. The proximate constituents. The simpler ones, such as sodium chloride and urea, are crystalline, while the complex ones, as albumen and gelatin, are amorphous.

The crystalloids pass out of the body; the colloids remain and form tissue.

3. The chemical compounds in the human body.

a Inorganic compounds.

(1) Water; between 60 per cent. and 70 per cent. of the whole body.

(2) Acids: hydrochloric, lactic, etc.

(3) Salts: phosphates of lime, sodium and potassium, necessary for bone formation. Sodium chloride necessary for cell activity.

b Organic crystalline bodies are the result of disintegration of the albuminous material.

c Hydrocarbons, or fats, include:

(1) Stearin.

(2) Palmitin.

(3) Olein.

d Albuminous bodies comprise:

(1) Albumins.

(2) Globulins.

(3) Fibrin.

(4) Peptones.

e Albuminoid or gelatinous bodies :
(1) Mucin.
(2) Gelatin.
(3) Chondrin.
(4) Elastin.
f Ferments.
(1) Organized. Yeast, bacteria.
(2) Unorganized. Pepsin, diastase, etc.

B. The chemistry of digestion.
1. Object of digestion.
2. Digestion in the mouth.
a Composition of saliva.
b Functions.
(1) Moistens food.
(2) Ministers to sense of taste.
(3) Liquefies starch and converts it into sugar or dextrin.
Evil results to infants and dyspeptics from use of starchy foods.
3. Digestion in the stomach.
a Composition of the gastric juice.
b Its functions.
(1) Converts albumins into peptones.
(2) Curdles milk, precipitating casein.
(3) Emulsifies fats.
4. Digestion in the intestine.
a Uses of bile.
b Uses of pancreatic juice.
c Uses of intestinal juice.
5. Passage of digested food into the blood.
6. Necessity for a mixed diet.
7. Effect of cooking on digestibility.

IV. Incombustibles.

A. Water.
1. Natural waters. Potable waters.
2. Impurities in water. Methods of detection. Purification.
3. Hard waters. Softening of water.
4. Use of water in the body.
a To keep the skin moist.

b To furnish a medium for excretion of solids.
c To aid digestion and absorption.
d To aid in chemical change.
5. Cooking of water.

B. Mineral matters.
1. Source.
2. Use in the body.

V. Combustibles.

A. Heat-producers.
1. Hydrocarbons, *i.e.*, fats and oils.
a Chemical composition.
b The chemical changes they undergo in the body.
c Animal oils, butter, lard, butterine.
d Vegetable oils. Ex., cottolene, palm oil.
e Food value: not flesh-formers, but good heat-givers.
2. Carbohydrates.
a The grape-sugar group.
(1) Grape sugar.
(2) Fruit sugar.
(3) Galactose.
(4) Inosite.
b The cane-sugar group.
(1) Cane sugar.
(2) Milk sugar.
(3) Malt sugar.
i Cooking of sugar.
ii Food value.
iii Maple sugar.
iv Saccharine.
c The starch group.
(1) Starch.
(2) Dextrin.
(3) Glycogen.
i Structure of starch grains.
ii Food value.

Starch is not a flesh former, as it does not contain nitrogen.

Starch is burned in the body to produce heat. It gives less heat than fats and oils, but gives it more quickly.

iii Cooking of starch. Ex., Toast, thickening of gravies, sauces, etc.

B. The flesh-formers or force-producers.

a Proteids. Chemical composition.

Classification. Changes which they undergo in the body. Examples.

b. Albuminoids. Chemical composition.

Classification. Examples.

Uses and value of the proteids and albuminoids; not only flesh-formers and force-producers, but heat-givers.

Gelatin. Source and extraction. Uses as a food.

VI. Vegetable Foods.

General characters:

A. Cereals.

Wheat. Rye. Barley.
Oats. Rice. Maize.

1. Composition.
2. Chemistry of bread and bread-making. Dough. Fermented and unfermented bread.

Baking-powders: their composition, uses, and adulterations.

Cooking—Softens the cellulose, breaks the starch, softens the gluten.

New and stale bread.

3. Food value.

B. Legumes or pulse.

Peas. Beans.

1. Composition.
2. Value as foods.

C. Farinaceous Foods.

Sago. Tapioca.
Arrowroot. Corn-flour.

1. Composition.
2. Value.

D. Tubers and roots.
 1. Composition.
 2. Value.
E. Fruits.
 1. Composition.
 Salts. Acids. Pectin.
 2. Value as foods.
F. Green vegetables.
 1. Composition.
 2. Value as foods.

VII. Animal Foods.

General characters :
A. Milk.
 1. Composition.
 2. Adulteration.
 3. Preservation.
 4. Preparations : Koumiss, Condensed Milk, Cheese.
 5. Cooking.
B. Eggs.
 1. Composition.
 2. Preservation.
 3. Cooking.
C. Flesh.
 General characters :
 Beef. Pork. Veal. Fowl. Fish.
 1. Composition.
 2. Preparations : Soup, Broth, Extract.
 3. Cooking.
 4. Preservation.

VIII. Food Adjuncts.

A. Beverages.
 1. Tea.
 a Preparation.
 b Composition.
 c Stimulating principle. Theine. Bitter principle. Tannin.

d Flavor. An essential oil.
e Adulteration.
f Cooking.
g Effect on body.

2. Coffee.
a Preparation.
b Composition.
c Adulteration.
d Cooking.

3. Cocoa.
4. Alcohol.

B. Condiments.

Salt. Pepper. Vinegar. Spices.

The books which will be especially helpful in this course are :

Inorganic Chemistry (Remsen).
Human Physiology (Landois and Sterling).
The Science of Nutrition (Atkinson).
The Chemistry of Foods (Bell).
Foods and Beverages (Beal).
Foods (Blythe).
Food: Its Source, Origin and Composition (Church).
The Science of Food (Cole).
Gelatin (Davidowsky).
Starch, Glucose and Sugar (Frankel).
Food (Hassall).
Food Adulteration and its Detection (Battershall).
Bacteriology (Fraenkel).
Butter: Its Analysis and Adulteration (Hehner and Angell).
Chemistry of Common Life (Johnson).
The Chemistry of Life and Health (Kimmins).
Chemistry of Bread, Wheat and Flour (Jago).
Studies in Fermentation (Pasteur).
Hygiene (Rohe).
Food and Feeding (Thompson, Sir H.)
Chemistry of Cooking (Richards, Mrs.).
Food in Health and Disease (Yeo).
Chemistry of Cooking (Williams).

NATIONAL HOUSEHOLD ECONOMIC ASSOCIATION.

GENERAL OFFICERS.

Honorary President, Mrs. Potter Palmer, 100 Lake Shore Drive.
Vice-President-at-large, Mrs. Charles Henrotin, 376 Ontario St.
Acting President, Mrs. E. B. Harbert, Evanston, Ill.
Vice-President for Illinois, Mrs. Robert H. Wiles, Freeport.
Recording Secretary, Mrs. Anna B. McMahan, 4577 Oakenwald Ave.
Corresponding Secretary, Mrs. Alice J. Whitney, 453 Belden Ave.
Treasurer, Mrs. Frances E. Owens, 6241 Sheridan Ave.

STATE VICE-PRESIDENTS.

Massachusetts, Mrs. Minerva B. Tobey, 19 W. Cedar St., Boston.
New Hampshire, Mrs. Lillian Streeter, Concord.
Connecticut, Mrs. V. E. Keeler, New Haven.
New York, Mrs. Helen H. Backus, 57 Livingston St., Brooklyn.
Maryland, Mrs. John J. Abel, 1604 Bolton St., Baltimore.
Virginia, Mrs. Ann Green, Culpepper.
Pennsylvania, Mrs. John Converse, Rosemont, Philadelphia.
Alabama, Mrs. Priscilla Goodwin, Robinson Springs.
Louisiana, Miss Catherine Minor, Kouma.
Kansas, Mrs. C. F. Wilder, Manhattan.
Utah, Mrs. Susan Young Gates, Provo.
Oregon, Mrs. E. W. Allen, Portland.
California, not yet decided.
Iowa, Mrs. Virginia J. Berryhill, 1011 Pleasant St., Des Moines.
Michigan, Dr. Mary E. Green, Charlotte.
Ohio, Miss Ottilie H. Krebs, Forest Ave., Avondale, Cincinnati.
Illinois, duties performed by Acting President.
Minnesota, not yet decided.
Indiana, not yet decided.
Kentucky, Mrs. Virginia M. Lewis, 1801 4th Ave., Louisville.
Missouri, Mrs. C. E. Stirling, 20 Westmoreland Pl., St. Louis.
Nebraska, Mrs. Harriet S. McMurphy.
Wisconsin, not yet decided.

Colorado, Mrs. Lyl M. Stansbury, Denver.
Maine, Mrs. Sarah Fairfield Hamilton, Saco.
New Jersey, Mrs. Louise Downs Quigley, Orange.

BOARD OF DIRECTORS.

Term expiring in 1895.—Mrs. Ellen R. Mendenhall, 1804 Green St., Philadelphia. Mrs. Frances E. Owens, 6241 Sheridan Ave. Mrs. Susan Look Avery, Anchorage, Ky. Mrs. Mary Hinman Abel, 1604 Bolton St., Baltimore.

Term expiring in 1896.—Mrs Ellen B. Dietrick, 20 Lowell St., Cambridge, Mass. Mrs. Sarah F. Gane, 425 La Salle Ave. Mrs. Kate H. Watson, 319 S. Robey St. Mrs. Ella Hill, 3910 Langley Ave.

Term expiring in 1897.—Mrs. Ellen M. Henrotin, 376 Ontario St. Mrs. Lavinia Hargis, 660 La Salle Ave. Mrs. Phœbe Butler, 116 Wisconsin St., Oak Park. Mrs. Gertrude Eastman (resigned), Los Angeles, California.

Term Expiring in 1898.—Mrs. Elizabeth Boynton Harbert, Evanston, Ill. Mrs. Mary McKittrick, Locust St., St. Louis. Rev. Anna Garlin Spencer, 387 Broadway, Providence, R. I. Mrs. Laura S. Wilkinson, 482 La Salle Ave.

CHAIRMAN OF STANDING COMMITTEES.

1. Sanitary Condition of the Home, Mrs. Minerva B. Tobey, 19 W. Cedar St., Boston.
2. Cooking Schools, Mrs. Olive Cotton, Athenæum Bldg.
3. Food Supply, Mrs. Kate H. Watson, 319 S. Robey St.
4. Housekeepers' Clubs, Mrs. Mary Coleman Stuckert, Auditorium Bldg.
5. Sewing, Mrs. Adele Strawbridge, 683 W. Adams St.
6. Press, in charge of Mrs. Ellen Battelle Dietrick, Cambridge, Mass., Mrs. Charlotte Perkins Stetson, San Francisco, Cal., Mrs. Helen H. Backus, Brooklyn, N. Y., Mrs. Virginia D. Young, Fairfax, S. C., Mrs. Maria S. Orwig, Chicago, Ill.

THE NATIONAL HOUSEHOLD ECONOMIC ASSOCIATION.

Incorporated March 16, 1893.

The following articles of incorporation and by-laws of The National Household Economic Association were adopted March 22, 1893, and went into effect at the annual meeting, October 11, 1893. The Association voted to drop the word "Columbian" at the meeting held in April, 1894.

I. The name of the Association shall be "The National Household Economic Association."

II. The object of this Association shall be:— 1. to awaken the public mind to the importance of establishing Bureaus of Information where there can be an exchange of wants and needs between employer and employed, in every department of home and social life. 2. To promote among members of the Association a more scientific knowledge of the economic value of various foods and fuels; a more intelligent understanding of correct plumbing and drainage in our homes, as well as need for pure water and good light in a sanitarily built house. 3. To secure skilled labor in every department in our homes, and to organize Schools of Household Science and Service.

LIST OF DIRECTORS FOR FIRST YEAR.

Mrs. Laura S. Wilkinson, Mrs. Sarah F. Gane, Mrs. Isadore P. Taylor, Mrs. Frances E. Owens, Mrs. Ellen M. Henrotin, Mrs. Lavinia Hargis, Mrs. Phœbe Butler, Mrs. J. M. Hill, Mrs. Elizabeth B. Harbert, Mrs. L. M. Mendenhall, Mrs. Mary H. Abel, Mrs. Susan Look Avery, Mrs. Kate Watson, Mrs. Mary W. McKittrick, Mrs. H. T. Eastman, Mrs. Ellen Battelle Dietrick.

BY-LAWS.

I. The management of this Association for the first year shall be vested in a board of sixteen directors, named in the articles of incorporation. The directors shall divide themselves by lot into four classes of four each, whose terms of office shall expire

respectively at the end of one, two, three, and four years, and vacancies occurring shall be filled by a vote of the Association.

II. The officers of this Association shall be: an Honorary President and Acting President, a Vice-President, a Vice-President-at-large, a Recording Secretary, a Corresponding Secretary, and a Treasurer. There shall also be a Vice-President for each State and a Chairman for each county of each State, the officers to be elected at annual meetings.

III. The duties of the Honorary President shall be to preside at the annual meeting and to consult and advise with the Board of Directors.

IV. The Acting President and Vice-President shall perform all the duties incident to such offices.

V. The Vice-Presidents shall supervise the work in their respective States, and report at the annual and semi-annual meetings. They shall organize such work as they deem appropriate to the needs of their States, providing they work in harmony with the Articles of Incorporation.

VI. The Recording Secretary shall keep a record of all the meetings and send to all the absent members reports of same.

VII. The Corresponding Secretary shall attend to all the correspondence and issue calls for the various meetings, and notify the Vice-President two weeks before the annual and semi-annual meeting, and make such reports as the President may recommend.

VIII. The Treasurer shall have charge of all the funds of the Association, and shall keep an exact account of all receipts and disbursements, and shall only pay such bills as have been approved by the Finance Committee. She shall be required to report at each annual and semi-annual meeting, and at such other times as the President shall require.

IX. The Finance Committee shall pass on all bills, audit the accounts of the Treasurer, and report to the Association at each annual meeting, and also at the semi-annual meeting of the Board of Directors.

X. The Chairman of each of the various counties shall arrange and provide for Household Economic Clubs in her county, and shall report to her Vice-President two weeks before the annual and semi-annual meetings.

XI. The annual meeting of the Association shall be held on the last Wednesday of October, and this shall be the beginning of the fiscal year. After this meeting it shall be the duty of the Board of Directors present to elect three of its members who shall constitute the Financial Committee for the coming year. A semi-annual meeting of the Board of Directors shall be held on the second Wednesday of April, when reports shall be read from the different States, the place selected for the next annual meeting, and all other business transacted, which may come before the Association. There shall also be held monthly meetings in each State branch of the Association.

XII. Special meetings of the Association may be called by the President, Vice-President, or any three members of the Board, the object of the meeting being stated on the call for the meeting.

XIII. There shall also be the following standing committees:

1. Committee on Sanitary Condition of the Home, correct Plumbing and Ventilation, Light, Heat, etc. The duties of this committee shall be to establish Home Science Clubs and to make a study of Sanitary Science.

2. Committee on Cooking Schools, Industrial Schools, Housekeepers' Emergency Bureau, Co-operative Laundries, Co-operative Bakeries, Training School for Servants, Kitchen Gardens and Public Kindergartens, Diet Kitchens, Mothers' and Nurse Girls' Classes, and Training School for Nurses. The duties of this committee shall be to keep itself informed of the work of each school and institution, and to direct all who wish to know where and at what hour one may visit these schools.

3. Committee on Food Supply. The duties of this committee shall be to prepare a descriptive list of wholesale and retail foods, such as meat, vegetables, butter, eggs, etc.; to compare New York and Chicago with other markets, and furnish statements of what articles of food are most desirable to buy, either in large or small quantities, with household recipes for cooking and all other matters relating to household economics.

4. Committee on Housekeepers' Clubs. The duties of this committee shall be to formulate plans to simplify housework in village communities, to suggest plans for co-operation in laundries, bakeries, and kitchens, to discuss plans for profitable

market gardening, poultry- and egg-raising on a small scale, and to furnish information on all topics connected with housework.

5. Committee on Sewing. The duties of this committee shall be to keep itself informed of the work done in various schools where sewing is taught, and give outlines of the methods used.

6. Press Committee. It shall be the duty of this committee to secure the publication of notes concerning the National Household Economic Association in some journal or periodical in the North, South, East, West, and Middle sections of the country, in order to keep alive public interest in the science of household economics; each member of the committee taking charge of the matter in her own section.

7. All women may become members of this Association by the payment of an annual fee of one dollar.

8. These by-laws may be amended at any annual meeting by a two-thirds vote of the members present, such amendment having been included in the call for the annual meeting.

9. The deliberations of all the meetings of this Association shall be governed by "Roberts' Rules of Order."

FORM FOR ANY HOUSEHOLD ECONOMIC SOCIETY.

THE CHICAGO HOUSEHOLD ECONOMIC SOCIETY.

Among the hopeful signs of progress now before us, none is more encouraging than our rapid development along the lines of household economics. Those intricate and valuable services performed in the home are no longer left unquestioningly to untrained hands and untaught heads.

We have come to see that this work is not merely "service," but is an art, a science, a craft, a business, and a profession. Schools, colleges, and universities are taking up this line of study and following it with new enthusiasm. Clubs and societies are adding this subject to their lists, and the field of practical illustration is being rapidly filled both at home and abroad.

The cooking-school in great cities shows the personal initiative finding expression, and the cooking-classes added to the

public school curriculum proves the general recognition of the value of this study.

Lectures, articles, essays, and stories in magazines and papers indicate the increasing interest of the public in this new science of which we are just beginning to appreciate the scope.

The master of household economics must understand all that pertains to the immediate surroundings of human life and its maintenance, building, furnishing, and decoration, sanitary engineering, hygiene, physiology, and chemistry; with laboratory analysis of foods and their adulteration, even to floriculture and landscape gardening. And this is not touching upon the professional side, the skill in methods of cleaning and in the mighty art of preparing food.

Departments of household economics are now added to the Wisconsin State University at Madison; the Leland Stanford, Jr., University in California, and the University of Chicago, and many others are contemplating such an addition to their course.

The Boston Institute of Technology has a very complete course on this subject; the People's Institute, Pratt, Drexel, and Armour, have special departments for its study, and the public schools of Boston, Philadelphia, Washington, San Francisco, and other cities are introducing manual training in this line with marked success.

The Michigan State Federation of Women's Clubs has adopted Household Economics as the subject of its year's work, and the General Federation of Women's Clubs of America has sent out a programme of similar work and recommended it to its vast constituency.

The admirable work of Mrs. Fischelle in St. Louis is bringing the new thought within reach of the poor, and the widespread "kitchen gardens" carry on in one detail what the all-embracing kindergarten begins.

In Vienna and Berlin time has proven the business success as well as hygienic value of numerous flourishing people's kitchens; in London the South Kensington school has its effect in this field of life; in Paris full training is provided in the schools for this work, though with the French the social sense is so highly developed that household economics have long since

become an art as well as a science. In Boston we have the finest and fullest exhibition of progress in this line on this side of the water, with its thoroughly established New England Kitchen, its industrial unions, its furnishing of lunch to the public schools, etc. In Syracuse much fine, practical work is being done, especially on the question of trained service. In New York, Washington, and Philadelphia are diet kitchens where medical cookery is furnished, and in our leading medical colleges a course in such cookery is provided, not only for nurses but for physicians, and now Chicago is organizing an earnest effort to put into practical effect some of the new knowledge on this great theme.

What the National Household Economic Association, under the far-reaching and energetic leadership af Mrs. John Wilkinson, has so well initiated in the nation at large it is now hoped to develop into local expression in this city.

Chicago has never been backward in recognizing the important movements in the world and is easily able to take the leadership in this great field. Dean Marion Talbot of Chicago University, one of the most admirably trained women in the country, is doing work which should easily hold her college in the front rank in this department. Armour Institute is so alive to the importance of the movement that it has supplemented its regular work under the able management of Miss Bullard by the most liberal offers of its large advantages in hall, classroom, and laboratory to the work now undertaken by the Chicago H. E. Society. The work proposed by this association for the present is as follows :

To establish at least one training class for household service, with careful examination of applicants claiming to have had training, and giving certificates as to grade in skill and experience. To form a housekeeper's alliance which shall agree, as far as possible, to engage the graduates of the special training class ; to establish a central office with a secretary, with bureau of information, registration, etc., etc., furnishing full bibliography, lists of teachers, speakers, and the like.

This is an immediate beginning, the entering wedge of much larger work. It should result in time in a great central building giving full accommodation to all departments of the work ;

where every principle and detail of household economics will be taught with full training on the technical side ; where a complete registration department will bring employer and employé together on a reliable basis, and where the newest thought and material progress in this field of life will continually be given to the public.

In every poor quarter of the city, people's kitchen buildings should demonstrate the value of the new methods and bring into immediate reach of every home this invaluable instruction.

Even from the narrowest point of view it means a great improvement in the convenience of living among the rich and a still greater uplift into the ease, health, and beauty of life among the poor. In this work we ask the interest and co-operation of every intelligent citizen.

THE CHICAGO HOUSEHOLD ECONOMIC SOCIETY,
ELLEN F. MARSHALL, Sec'y.

CONSTITUTION
OF THE
CHICAGO HOUSEHOLD ECONOMIC SOCIETY.

ARTICLE I.—NAME.

The name of this association shall be the Chicago Household Economic society.

ARTICLE II.—OBJECT.

The object of this society shall be to establish in Chicago a practical expression of the purposes outlined in the articles of incorporation of the National Household Economic Association.

ARTICLE III.—OFFICERS.

Sec. 1. The officers of this society shall be a president, vice-president, recording secretary, corresponding secretary, and treasurer.

Sec. 2. An executive committee shall be appointed consisting of five members, of which the president of the society shall be chairman, to have charge of the affairs of the society.

ARTICLE IV.—MEMBERSHIP.

Any resident of Chicago or vicinity interested in our object and willing to further it is eligible to membership in this society.

ARTICLE V.—MEETINGS.

Sec. 1. Business meetings of this society shall be held quarterly, the first to be on the first Thursday in December, 1895, and to constitute the beginning of the fiscal year.

Sec. 2. Public meetings shall be held as deemed advisable by the executive committee.

ARTICLE VI.—DUES.

The annual dues of this society shall be $2 ; associate members, $5, and life members, $50.

ARTICLE VII.—AMENDMENTS.

This constitution may be amended by a two-thirds vote of those present and voting at an annual meeting, such amendment having been submitted in writing at the quarterly meeting next previous.



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